



PRODUCT EQUIPMENT

Specialists in Sound

WESTBURY N.Y.
516-997-6363



THE ONLY ONE

July 13, 1977

NEW SPECIFICATION SHEETS

Enclosed are 18 new specification sheets for current and recently introduced Muzak equipment. Some comments:

AMPLIFIERS

A-110B is similar to the A-110 except that it is equipped with electronic muting for both the microphone and Muzak channels. This is a desirable feature for many applications.

The A-1000 and A-2000 are high-powered amplifiers, respectively 100 and 200 Watts.

MIXER

The MM6VU is a universal mixer/line amplifier with complete flexibility and is suitable for many requirements. This unit uses all the plug-in modules and has the capability of feeding to separate channels.

SPEAKERS AND HORNS

The C4M10/U704 is a compact 5" speaker with high compliance, high sensitivity and extended frequency range.

The FR-810/U704 is a fire retardant cone speaker, yet in other respects similar to the C8M10/U704.

The UH-15T is a weather-proof high fidelity, low distortion loudspeaker system.

BAFFLES AND GRILLS

Muzak ceiling baffles and grills feature popular, elegant, yet practical designs.

The MX 44, - 45 and -46 units are especially suitable for surface mounting with eye-appeal and decorator styling. They accommodate the new C4M10/U704 speaker.

EXCLUSIVELY MUZAK® EQUIPMENT

100 PARK AVENUE
NEW YORK, NEW YORK 10017

November 1, 1977

Dear Franchisee and Engineers:

We are pleased and proud to announce the addition of the Altec 50, 100 and 200 watt power amplifiers and the Altec 5 input mixer to the Muzak line of equipment.

This equipment has been tailored to Muzak specifications, to make them suitable for our requirements. The units are finished in the new Muzak colors, black and silver.

The enclosed specification sheets provide all the information on performance and features of this fine equipment.

The units will be available for delivery in mid December.

Pricing and model designations are as follows:

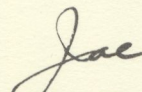
<u>UNIT</u>	<u>MUZAK MODEL</u>	<u>BASIC ALTEC MODEL</u>	<u>FRANCHISEE COST</u> <u>EACH</u>
Power Amplifier, 50 Watts	MA-50	1593B	\$274.00
Power Amplifier, 100 Watts	MA-100	1594B	\$318.00
Power Amplifier, 200 Watts	MA-200	1590C	\$396.00
Mixer, 5 Input	MAX-5	1592B	\$364.00

Additionally we are making available the following accessories for the above amplifiers and mixer.

<u>DEVICE</u>	<u>MODEL</u>	<u>COST EACH</u>
Microphone Preamplifier	Altec 1588B	\$24.00
Pink Noise Generator	Altec 1680	\$98.00
Input Transformer	Muzak UT-5	\$15.00

We are confident that this equipment will add a new dimension in flexibility to meet requirements for heavy duty, high power and high reliability for both Muzak and public address installations.

Sincerely,



Joe Coco
Product Manager

JC/kk
Encls.

EXCLUSIVELY
MUZAK®
EQUIPMENT
1000 SHAMES DRIVE
WESTBURY, NEW YORK 11590

1978 EQUIPMENT PRICE LIST

Dear Franchisees and Engineers:

Enclosed is the new franchise subscriber equipment price list which will become effective April 1, 1978.

Although the prevailing rise in material and labor costs has resulted in higher prices on some equipment marketed by MUZAK, we are pleased to announce that because of greater franchise participation in equipment purchases, MUZAK has by means of its mass purchasing power been able to keep the prices at levels that can continue to provide you with savings.

You will find when comparing the new prices with the old, that there are no arbitrary across the board increases. Each item of equipment has been evaluated in terms of its past costs, inventory, present costs and movement. On many items there are no price increases while on others increases occur in the specialized and low volume items.

Because of extremely limited demand and attendant extraordinary rise in production costs, several items will be discontinued or phased out.

The model A-175 amplifier will no longer be produced, but a small run was made to satisfy back orders.

The E8M10/U704E economy speaker also falls into the above category and will be offered until our present stock is sold out. We have investigated other designs but have not yet found any to satisfy our standards and price requirements.

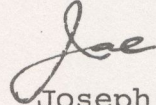
The C8M10/U470 speaker has also shown a greater increase in price because of reduced field requirements for the heavy duty type U470B transformer. This unit too will be phased out unless there is sufficient increase in demand this year. The standard and popular C8M10/U704 is hard to beat both in performance and price. It satisfies over 90% of all field requirements for cone type speakers.

To expedite delivery, the MUZAK-Altec MA series will be shipped from three warehouses located in Anaheim, Cal., Oklahoma City, Okla., and New Jersey. These items are ready for immediate shipment.

In the very near future we will add the new McMartin TR55D tuner, TR66D receiver, and the MS-105, 5 watt amplifier to the MUZAK line of equipment. These will be known as MUZAK models STR-500, STR-600 and A-105 respectively. We will continue to produce the STR-300 and STR-400 during the transition period which will last several months.

We want to thank all those franchisees who have supported the MUZAK equipment program and all the members of the Board of Equipment Advisors who have contributed toward the formulation of equipment policies that have guided us in the past as well as they will in the future. We are anxious to serve your equipment requirements.

Sincerely,

A handwritten signature in cursive script, appearing to read "Joe", written in dark ink.

Joseph Coco
Product Manager

JC:al

P.S. Some microphone prices will be sent at a later date since negotiations are still in process. A new page 10 will follow.

PRICE LIST

EFFECTIVE APRIL 1, 1978

<u>MODEL AND DESCRIPTION</u>	<u>STOCK NO.</u>	<u>QUANTITIES</u>	<u>PRICE</u>
STR-300 TUNER	823-015	Each	\$ 91.00
STR-400 RECEIVER	823-020	Each	106.50

STR-400 PLUG-IN AMPLIFIERS

A-6 AMPLIFIER (6 Watts)	023-169	Each	27.50
A-12 AMPLIFIER (12 Watts)	023-170	Each	38.15

UNIVERSAL POWER AMPLIFIERS

A-110 AMPLIFIER (10 Watts)	023-166	Each	58.75
A-110B AMPLIFIER (10 Watts)	023-179	Each	62.75
A-125 AMPLIFIER (25 Watts)	023-167	Each	85.50
A-125B AMPLIFIER (25 Watts)	023-180	Each	77.50
A-175B AMPLIFIER (75 Watts)	023-181	Each	126.50

AMPLIFIER ACCESSORIES

PT-3 PRE AMPLIFIER	023-215	Each	15.00
TC-3 TONE CONTROL	023-217	Each	10.50
R-3 MUTE MODULE	023-218	Each	8.50
TA-3 TELE. ANNOUNCE	023-216	Each	15.00
EC-3 CHIME	198-002	Each	12.50
ES-3 SIREN	685-003	Each	21.50
EB-3 BUZZER	685-002	Each	12.50
UT-3 TRANSFORMER	803-113	Each	12.75
UT-4 TRANSFORMER FOR A-110	803-114	Each	9.50
UT-5 TRANS. FOR MA SERIES	803-115	Each	15.00
1588B PREAMP FOR MA SERIES	023-220	Each	24.00
1680 NOISE GEN. FOR MA SERIES	023-222	Each	98.00

CONTINUED

APRIL 1, 1978

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AMPLIFIER ACCESSORIES (Cont'd.)

<u>MODEL AND DESCRIPTION</u>	<u>STOCK NO.</u>	<u>QUANTITIES</u>	<u>PRICE</u>
RM-110 RACK MOUNT KIT	047-215	Each	\$ 7.50
RM-125B/ 175B RACKMOUNT KIT	047-218	Each	7.50
RM-125 RACK MOUNT KIT	047-216	Each	7.50

HIGH POWER AMPLIFIERS

A-1000 (100 Watts)	023-171	Each	240.00
A-2000 (200 Watts)	023-172	Each	330.00
MA-50 (50 Watts)	023-183	Each	274.00
MA-100 (100 Watts)	023-184	Each	318.00
MA-200 (200 Watts)	023-185	Each	396.00

MIXERS

MM6VU	467-004	Each	117.50
MAX-5 (5 Inputs)	467-008	Each	364.00

McMARTIN-JOHNSON AMPLIFIER MODULE ADAPTERS

MJ-1 ADAPTOR	007-300	Each	2.40
MJR-1 ADAPTOR	007-301	Each	5.40
JM-1 ADAPTOR	007-302	Each	2.40
JMR-1 ADAPTOR	007-303	Each	5.40

VOLUME CONTROL SHAFT BUSHING & BLANKING CAP NUT

823-006 BLANKING CAP NUT	.15/ea.
823-007 SHAFT BUSHING	.85/ea.

EFFECTIVE APRIL 1, 1978

S P E A K E R S

<u>MODEL NO.</u>	<u>STOCK NO.</u>	<u>STANDARD PACKAGE</u>	<u>QUANTITIES</u>	<u>FRANCHISE COST (EACH)</u>
C8M10 (See Note 1)	715-018	10	10 - 90 100 -490 500-2990 3000-UP	\$ 4.20 4.00 3.85 3.75
C8M10/U704	715-204	10	10 - 90 100 -490 500-2990 3000-UP	6.75 6.40 6.10 5.90
C8M10/U470B (See Note 2)	715-202	10	10 - 90 100 -490 500-UP	8.90 8.50 8.10
DVC-810 w/2-U704	715-206	10	10 - 90 100 -490 500 -990 1000-UP	10.10 9.70 9.30 8.90
E8M10/U704E (16 per carton) (See Note 3)	715-302 <u>Limited Quantities</u>	16	16 - 96 112 -496 512-UP	5.85 5.55 5.25
MOD-810A w/U704	715-304	10	1 - 40 50 -100 100-UP	7.20 6.90 6.60
CX810 CO-AX w/U704	715-306	10	10 - 90 100 -490 500-UP	10.90 10.45 10.10

CONTINUED

EFFECTIVE APRIL 1, 1978

S P E A K E R S (Cont'd.)

<u>MODEL NO.</u>	<u>STOCK NO.</u>	<u>STANDARD PACKAGE</u>	<u>QUANTITIES</u>	<u>FRANCHISE COST (EACH)</u>
C4M10/U704	715-205	18	18 - 90	\$ 7.55
			108 -360	7.20
			378-UP	6.90
FR-810 w/U704	715-308	10	10 - 90	7.10
			100 -490	6.85
			500-2990	6.60
			3000-UP	6.40

NOTE:

1. The C8M10 Series is sold in units of 10 only.
Orders received in non-multiples of 10 will automatically be increased to the next 10 quantity.
2. For C8M10/U470B combinations, allow a minimum of four weeks for shipment from date of receipt of order at the factory.
3. For Economy model, allow up to six weeks for delivery.

B A F F L E S

<u>MODEL NO.</u>	<u>STOCK NO.</u>	<u>DESCRIPTION</u>	<u>FRANCHISE COST (EACH)</u>
BW-8W	063-127	Wall, Walnut	\$ 11.00
BW-8B	063-126	Wall, Blonde	11.00
BC-8W	063-125	Corner, Walnut	10.00
BC-8B	063-124	Corner, Blonde	10.00
BT-8W	063-123	Two-Way, Walnut	14.75
BT-8B	063-122	Two-Way, Blonde	14.75

BAFFLES WITH C8M10/U-704 SPEAKER COMBINATIONS
MOUNTED AND TAPPED AT 2 WATTS

BW-8W/ST	063-205	Wall, Walnut	17.85
BW-8B/ST	063-204	Wall, Blonde	17.85
BC-8W/ST	063-203	Corner, Walnut	16.85
BC-8B/ST	063-202	Corner, Blonde	16.85
BT-8W/ST	063-201	Two-Way, Walnut	21.60
BT-8B/ST	063-200	Two-Way, Blonde	21.60

PACKAGING

BW & BC PACKED TWO TO A BOX
BT PACKED ONE TO A BOX

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S O U N D C O L U M N S
30 Watts, 60 Watts

<u>MODEL NO.</u>	<u>STOCK NO.</u>	<u>DESCRIPTION</u>	<u>FRANCHISE COST (EACH)</u>
MSC-65	714-010	6-5 $\frac{1}{4}$ " Speakers, 30W, 16 OHMS (Walnut only)	\$ 35.50
MSC-68	714-011	6-8" Speakers, 60W 16 OHMS (Walnut only)	65.25

H O R N S & C E I L I N G S P E A K E R S

<u>MODEL NO.</u>	<u>STOCK NO.</u>	<u>DESCRIPTION</u>	<u>QUANTITIES</u>	<u>FRANCHISE COST (EACH)</u>
CH-1570	715-102	(Coax Horn	1 - 5	\$ 51.00
		(15 Watts, 70	6 - 23	49.00
		(Volts, Biege	24 - up	46.30
CH-3070	715-103	(Coax Horn	1 - 5	60.00
		(30 Watts, 70	6 - 23	57.50
		(Volts, Biege	24 - up	54.50
HS-15	715-104	(Horn, Surface Mount	1 - 5	27.25
		(15 Watts, 70 Volts,	6 - 23	26.00
		(Biege	24 - up	24.60
HC-10T	715-109	(Ceiling Spkr.	1 - 5	19.45
		(Baffle Combo	6 - 23	18.40
		(Decor Styled	24 - up	17.50
HC-15	715-105	(Horn, Ceiling Mount	1 - 5	29.75
		(15 Watts, 70 Volts	6 - 23	28.50
		(Brushed Al.	24 - up	27.00
UH-15T	715-108	(Outdoor Spkr.	1 - 4	48.00
		(System 15W	5 - 23	46.50
		(25, 70 Volts	24 - up	45.00

EFFECTIVE APRIL 1, 1978

MUZAK/SOUNDOLIER 4+ BAFFLES-GRILLES & ACCESSORIES

<u>MUZAK Model No.</u>	<u>Stock No.</u>	<u>Standard Pkg.</u>	<u>F R A N C H I S E C O S T</u>			
			<u>1-24</u>	<u>25-49</u>	<u>50-99</u>	<u>100-UP</u>
MX-44 Baffle	083-001	6	17.68	16.81	15.96	15.17
MX-45 Baffle	083-002	6	21.61	20.57	19.50	18.53
MX-46 Baffle	083-003	6	22.13	21.01	19.96	18.97
MX-47 Baffle	083-007	6	23.84	22.73	21.70	20.69
MT710-4 Grille	083-006	6	5.51	5.23	4.97	4.72
MT720-4 Grille	083-004	6	5.96	5.66	5.37	5.11
MT730-4 Grille	083-005	15	6.62	6.28	5.98	5.68
MPR411 Mtg. Ring	659-010	--	1.87	1.78	1.70	1.62
MPR412 " "	659-011	--	1.87	1.78	1.70	1.62
M435-1 (1') Suspension Hanger Rod for MX44	367-210	--	3.61	3.42	3.24	3.10
M435-2 (2') "	367-211	--	4.33	4.04	3.91	3.71
M435-3 (3') "	367-212	--	4.82	4.58	4.35	4.14
Additional Footage	price per foot	--	.70	.67	.64	.61

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

EFFECTIVE APRIL 1, 1978

MUZAK/SOUNDOLIER GRILLES & MTG. RINGS

MUZAK MODEL NO.	STOCK NO.	STANDARD PACKAGE	FRANCHISE COST (EACH)		
				60 PCS	200 PCS
MP-900 Grille	344-001	20	1.58	1.15	-
MP-910	344-002	20	1.59	1.17	-
M60-8	344-003	20	2.25	1.85	1.64
MM-222	344-004	20	2.25	1.85	1.64
MM-222W	344-005	20	2.25	1.85	1.64
M51-8	344-006	20	1.98	1.58	1.48
M161-8	344-008	12	3.95	-	-
M164-8	344-007	10	5.10	-	-
M71-8 Mtg. Ring	659-005	-	1.97	-	-
M72-8 " "	659-006	-	1.93	-	-
M73-8 " "	659-007	-	1.95	-	-
M75-8 " "	659-008	-	1.28	-	-
MP77-8 " "	659-009	-	1.05	.75	-

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FOURJAY GRILLES

<u>MUZAK MODEL NO.</u>	<u>STOCK NO.</u>	<u>STANDARD PACKAGE</u>	<u>SHIPPING WEIGHT (LBS.)</u>	<u>FRANCHISE COST (EACH)</u>
CR 8 W	343-032	20	12	\$ 1.08
		100	60	1.03
CRM 8 W	343-033	20	15	1.58
		100	80	1.52
SS 8 W	343-017	20	14	1.28
		100-Up	70 Up	1.23
SSM 8 W	343-034	20	15	1.78
		100	80	1.73
DSS 8 W	343-035	20	19	2.92
				2.82
MR 8	659-003	20	6	.58
		100	30	.53
EJ 8 W	343-036	20	12	1.02
		100	60	.98
ES 8 W	343-037	20	12	1.02
		100	60	.98
EJM 8 W	343-038	20	15	1.52
		100	80	1.47
SLC - 3	343-039	3' Length	12 oz.	.73
HS -15	343-040	1	8 oz.	.95
IC 8 CG	343-041	1	4	14.40
PH 8 4	343-042	10	7	1.93
		100	70	1.88

CONTINUED

EFFECTIVE APRIL 1, 1978

FOUR J A Y G R I L L E S (Cont'd.)

<u>MUZAK MODEL NO.</u>	<u>STOCK NO.</u>	<u>STANDARD PACKAGE</u>	<u>SHIPPING WEIGHT (LBS.)</u>	<u>FRANCHISE COST (EACH)</u>
HF 8 CG (w/o spkr.)	343-043	Any Quantity	1 - 11 12 - Up (7 Lbs. Ea.)	\$ 19.75 18.75
LS 8 W	343-010	20 100	12 60	1.02 .98
FJ 8 W	343-009	20 100	12 60	1.02 .98
D 8 W	343-044	20 100	8 40	1.38 1.35
DFJ 8 W	343-045	20 100	19 100	2.48 2.38
DLS 8 W	343-046	20 100	19 100	2.48 2.38
FJM 8 W	343-047	20 100	15 80	1.52 1.47
DFJM 8 W	343-048	20 100	23 120	2.98 2.88
TB-8 T-BAR	343-049	10 100	13 130	1.25 1.10
TB-8X	343-050	10 100	14 140	1.75 1.65

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

EFFECTIVE APRIL 1, 1978

MUZAK SHURE MICROPHONES

<u>MUZAK/SHURE</u> <u>MODEL NO.</u>	<u>MUZAK</u> <u>STOCK NO.</u>	<u>F R A N C H I S E</u>		<u>C O S T</u>
		<u>1 - 4</u>	<u>5 - 9</u>	<u>10 - UP</u>
CM-414B	459-211	17.00	16.50	15.75
CR51-450	459-222	25.00	24.50	23.00
DY515-SBG18	459-226	25.00	23.75	22.75
DY515-SB	459-228	21.00	20.75	19.50
DY61C	459-136	22.50	20.00	19.10

NOTE: (1) QUANTITY DISCOUNTS APPLY TO MIXING OF ALL MODELS

NOTE: (2) ALSO AVAILABLE THROUGH MUZAK: THE REGULAR SHURE LINES AT
JOBBER'S NET PRICES

EFFECTIVE APRIL 1, 1978

MICROPHONE ACCESSORIES

<u>MODEL AND DESCRIPTION</u>	<u>STOCK NO.</u>	<u>FRANCHISE COST</u>
MO-5 MICROPHONE RECEPTACLE 5, Pin	461-001	6.95
MICROPHONE PLUG 5,Pin	231-214	3.15

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

EFFECTIVE APRIL 1, 1978

ANTENNAS & ACCESSORIES

<u>MUZAK MODEL NO.</u>	<u>STOCK NO.</u>	<u>FREQUENCY</u>	<u>FRANCHISE COST (EACH)</u>
MJ-3 (3 Elem)	031-026	88-108	8.95
MJ-5L (5 Elem)	031-027	88-97.9	12.55
MJ-5H (5 Elem)	031-028	98.1-108	12.55
MJ-10L (10 Elem)	031-029	88-97.9	18.45
MJ-10H (10 Elem)	031-030	98.1-108	18.45

MINIMUM ORDER OF \$65.00. ANTENNAS MAY BE COMBINED TO MEET THIS MINIMUM PRICE.

SPECIAL JERROLD J-55-FM ANTENNA)	031-032	<u>DESCRIPTION</u> 75 ohm Ruggedized 5 element FM Yagi (Equipped with Jerrold Type F-61 Fixed Connector and F-59-A type mate).	40.50
AMB-1 Bracket	151-010	Bracket for Mounting Antenna at 45° angle	3.35
BPF-1	303-200	Band Pass Filter "Specify Frequency" (88-108 MHz)	112.50

EFFECTIVE APRIL 1, 1978

A N T E N N A A C C E S S O R I E S

<u>MODEL AND DESCRIPTION</u>	<u>STOCK NO.</u>	<u>QUANTITIES</u>	<u>FRANCHISE COST (EACH)</u>
F-59-A Type Coaxial Connector (Male Cable Connector)	231-408	Pkg. of 25	\$ 5.00
F-71 Type Male Coupling Adaptor (Mates one or more PDA pads)	015-013	Each	1.20
F-81 Type Coaxial Line Extender (female-connects 2 F-59-A type fittings)	015-014	1 - 24 Pkg. of 25	.85 16.25
PDA Type In-line Attenuator Pad (specify 3, 6, 10 or 20 db)	055-107	1 - 9 10 - 19 20 - Up	4.50 4.40 4.35
PL-602 Type Crimping Tool	031-033	Each	9.65

EFFECTIVE APRIL 1, 1978

A U T O T R A N S F O R M E R

V O L U M E C O N T R O L S

<u>MODEL NO.</u>	<u>STOCK NO.</u>	<u>QUANTITY</u>	<u>FRANCHISE COST</u>
VC-27-A Standard w/plate	835-105	10 - 50	\$ 6.05
		60 - 100	5.90
		110 - 500	5.75
		510 - Up	5.60
VC-28 w/o plate	835-107	10 - 50	5.95
		60 - 100	5.80
		110 - 500	5.65
		510 - Up	5.50
VC-29 w/plate & relay	835-106	10 - 50	9.20
		60 - 100	8.95
		110 - 500	8.70
		510 - Up	8.45

NOTE:

THESE UNITS ARE PACKED TEN TO A CARTON. (10 MIN. ORDER)

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

EFFECTIVE APRIL 1, 1978

VOLUME CONTROL PLATES

<u>MUZAK STOCK NO.</u>	<u>DESCRIPTION</u>	<u>FRANCHISE COST (EACH)</u>	<u>MINIMUM ORDER</u>
547-704	Black lettering on silver background - approximately 2 3/4" X 4 1/2" TYPE A	.75	5
547-701	Gold lettering on black background - approximately 1 3/4" X 2 5/8" TYPE B	.30	50
547-702	Silver lettering on black background - approximately 1 3/4" X 2 5/8" TYPE C	.25	50
547-705	Silver lettering on black background - approximately 2 1/8" X 2 3/4" TYPE D	.35	20

NOTE: TYPES "A" and "D" USED WITH
VC-27A, VC-28 OR VC-29

EFFECTIVE APRIL 1, 1978

S P E A K E R T R A N S F O R M E R S

<u>MODEL NO.</u>	<u>STOCK NO.</u>	<u>DESCRIPTION</u>	<u>QUANTITIES</u>	<u>FRANCHISE COST (EACH)</u>
U-704	803-904	70 Volt 4 Watt	25 - 100	\$ 2.50
			125 - 500	2.30
			525 - Up	2.10
			(Standard Packing 25)	
U-470B	803-900	70 Volt 4 Watt	1 - 20	4.60
			21 - 100	4.25
			101 - 500	3.90
			(Standard Packing 20)	
U-254	803-905	25 Volt 4 Watt	25 - 100	2.60
			125 - 500	2.40
			525 - Up	2.20
			(Standard Packing 25)	

NOTE:

Quantity discounts apply to mixing of all models on this price list.

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

EFFECTIVE APRIL 1, 1978

I N P U T T R A N S F O R M E R S

<u>MODEL NO.</u>	<u>STOCK NO.</u>	<u>FRANCHISE COST (EACH)</u>
U-901	803-111	\$ 12.57
U-902	803-110	14.86

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

EFFECTIVE APRIL 1, 1978

MUZAK SPECIAL EFFECTS PROGRAMMER

<u>MODEL NO.</u>	<u>STOCK NO.</u>	<u>DESCRIPTION</u>	<u>FRANCHISE COST (EACH)</u>
M-30-2	828-402	Playback/Record Combination with Microphone and Headset	\$323.30
P-30-2	828-302	Playback Unit with Headset With 7½ IPS Pulley	239.20 12.50 EX.

A C C E S S O R I E S

M30/P30	257-101	Cartridge Bulk Eraser (Degausser) Hand Held	12.50
SS-1A	787-031	Silence Sensor	39.90
MIT-110A	787-030	Solid State Interval Timer (1-10 Minutes)	27.60

C A R T R I D G E S - N A B T Y P E S , A & B

<u>STOCK NO.</u>	<u>PLAYING TIME AT 3-3/4 I.P.S.</u>	<u>FRANCHISE COST (EACH)</u>
193-300	40 Seconds	\$ 3.00
193-308	1 Minute, 20 Seconds	3.25
103-309	2 Minutes, 20 Seconds	3.60
193-310	3 Minutes, 20 Seconds	4.00
193-311	4 Minutes, 40 Seconds	4.40
193-312	11 Minutes	6.30
193-313	32 Minutes	15.90

NOTE: CARTRIDGES ARE LABELED WITH PLAYING TIME AT 7.5 IPS. DIVIDE BY 2
FOR 3.75 IPS.

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

EFFECTIVE APRIL 1, 1978

M U Z A K L O G O P L A T E S

<u>STOCK NO.</u>	<u>DESCRIPTION</u>	<u>FRANCHISE COST</u>
547 - 300	Muzak Metal-Cal Logo	\$ 3.95/C

A L U M I N U M N A M E P L A T E S
.012" Thick Anodized Black Embossed with Adhesive

547-307	7/16" X 7/8"	Standard Pkg. (25)	5.25 Pkg.
547-308	5/8" X 2-5/8"	Standard Pkg. (25)	5.75 Pkg.
547-309	3/4" X 3½"	Standard Pkg. (25)	6.25 Pkg.

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

EFFECTIVE APRIL 1, 1978

U T I L I T Y B O X

(For Microphone Receptacles, Volume Controls, etc.)

<u>MUZAK MODEL NO.</u>	<u>MUZAK STOCK NO.</u>	<u>QUANTITIES</u>	<u>FRANCHISE COST (EACH)</u>
UB-1	151-004	10 - 20	\$ 2.16
Utility Box		30 - 50	1.97
		60 - 250	1.88
		260 - Up	1.78
UB-1	151-005	Any	.39
Conduit Coupler		Quantity	

NOTE:

Packed and sold only in units of 10. Orders received in non-multiple of 10 will automatically be increased to the next 10 quantity.

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

EFFECTIVE APRIL 1, 1978

C O M B I N A T I O N W A L L S H E L F

<u>MODEL NO.</u>	<u>STOCK NO</u>	<u>FRANCHISE COST (EACH)</u>
MCS-2	047-502	\$ 8.25

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

EFFECTIVE APRIL 1, 1978

MUZAK/SOUNDOLIER EQUIPMENT RACKS & ACCESSORIES
Standard Muzak color or full range of Soundolier Colors
All racks with drilled and tapped mounting rails

<u>MUZAK Model No.</u>	<u>STOCK NO.</u>	<u>DESCRIPTION</u>	<u>FRANCHISE COST</u>
M100-42	590-001	Cabinet Knocked Down	\$ 71.50
M100-61	590-002	" " "	85.00
M100-77	590-003	" " "	100.45
MWA100-42	590-004	" Welded, Assembled	78.55
MWA100-61	590-005	" " "	90.55
MWA100-77	590-006	" " "	105.75
M300-17	590-007	" Sectional Wall	66.80
M300-28	590-008	" " "	99.50
M300-42	590-022	" " "	140.70
M110-42	590-009	" Door	32.10
M110-61	590-010	" "	34.90
M110-77	590-011	" "	40.85
MSH19-7	590-012	" Shelf	9.25
MS19-1	590-017	" Panel 1-3/4" x 19"	1.45
MS19-3	590-013	" " 3-1/2 x 19"	1.85
MS19-5	590-018	" " 5-1/4" x 19"	2.20
MS19-7	590-014	" Panel 7" x 19"	2.45

CONTINUED ...

EFFECTIVE APRIL 1, 1978

MUZAK/SOUNDOLIER EQUIPMENT RACKS & ACCESSORIES (Cont'd.)
Standard Muzak color or full range of Soundolier Colors
All racks with drilled and tapped mounting rails

<u>MUZAK</u> <u>Model No.</u>	<u>Stock No.</u>	<u>DESCRIPTION</u>	<u>FRANCHISE COST</u>
MS19-8	590-019	Cabinet Panel 8-3/4" x 19"	\$ 2.85
MS19-10	590-015	" " 10-1/2" x 19"	3.30
MS19-12	590-020	" " 12-1/2" x 19"	3.80
MS19-15	590-016	" " 15-1/4" x 19"	4.45

NOTE: PRICES SUBJECT TO CHANGE WITHOUT NOTICE

EFFECTIVE APRIL 1, 1978

T I M E R S

<u>MUZAK MODEL NO.</u>	<u>STOCK NO.</u>	<u>DESCRIPTION</u>	<u>FRANCHISE COST (EACH)</u>
J-4847	787-105	15 min. On-15 min. Off	\$ 40.25
PE-15	787-035	Program Extractor, 45 H2	29.50
PS-1	587-004	Power Supply/Amplifier for PE-15	75.00

EFFECTIVE APRIL 1, 1978

MUZAK/SOUNDOLIER ELECTRONIC ACCESSORIES

<u>MUZAK</u> <u>Model No.</u>	<u>Stock No.</u>	<u>Description</u>	<u>FRANCHISE COST</u>
MMVX-193	590-021	Monitor Panel/Meter	\$ 62.60

EFFECTIVE APRIL 1, 1978

AMPLIFIER AND SPEAKER LINE

SUPERVISORY EQUIPMENT

<u>MODEL NO.</u>	<u>STOCK NO.</u>	<u>DESCRIPTION</u>	<u>FRANCHISE COST (EACH)</u>
SLM-1	469-000	PLUG-IN CARD (MONITORS 2 LINES)	\$ 40.00
AM-2	469-001	PLUG-IN CARD (MONITORS 2 AMPS.)	40.00
GC-1	469-002	PLUG-IN CARD (20 HZ OSCILLATOR)	30.00
CH-1	603-011	CARD HOLDER CAGE (HOLDS 9 CARDS)	67.75
PS-3	587-010	CARD POWER SUPPLY ± 12V @ 1.5A)	79.80

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MESSENGER INJECTOR - "MUZACOM"

<u>MODEL NO.</u>	<u>STOCK NO.</u>	<u>DESCRIPTION</u>	<u>FRANCHISE COST (EACH)</u>
MCR-1	828-404	Record/Playback Combination (40 message) Injector	\$ 465.00
MCP-1	828-304	Play only (40 message) Injector	390.00
	537-001	Muzacom Headphone 2000, OHMS	3.90

MUZAK ON HOLD - "MUZAHOLD"

MH-1	023-006	Muzak-on-hold for (5) Button Telephones	155.00
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MUZAHOLD ACCESSORIES

A-1	023-005	1 Watt Amplifier, 8 Ohm out	25.00
PS-2	587-005	15 V Power Supply for 1 Watt Amp.	10.00
MH-22X	175-100	RJ 22X Cable Adapter	21.00

CHIME PAGE UNIT - "MUZACHIME"

CP-1B	198-010	Electronic Chime Page Unit	375.00
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CP-1 OPTIONS

DAR-1	198-011	Remote Rotary Dial Adapter (installed)	75.00
DAT-1B	198-013	Remote Touch-tone Dial Adapter (installed)	250.00

EFFECTIVE APRIL 1, 1978

MUZAGARD EAR PROTECTION SOUND SYSTEM EQUIPMENT

<u>MODEL NO.</u>	<u>STOCK NO.</u>	<u>DESCRIPTION</u>	<u>FRANCHISE COST (EACH)</u>
ME-1	485-001	EXCITER	\$ 187.50
MA-1	485-002	ANTENNA AMPLIFIER	65.15
ML-1	485-003	LOOP ANTENNA	23.00
MC-1	485-004	BATTERY CHARGER	76.15
MR-1	485-005	RECEIVER	57.55
MT-1	485-006	TRANSDUCER SET BUTTON TYPE EAR PHONE	20.00
MK-1	485-007	CUSTOM MOLDABLE TRANSDUCER TO EAR ADAPTER IMPRESSION KIT (MAKES 12)	17.95
		CUSTOM FITTED EAR PLUGS MADE ACCORDING TO INDIVIDUAL EAR IMPRESSIONS	12.50 Pair
		PREMOLDED TRANSDUCER TO EAR ADAPTER PLUGS	
MK-2	485-008	"SMALL" SIZE (1 Pair)	2.00
MK-2	485-010	"MEDIUM" SIZE " "	2.00
MK-2	485-012	"LARGE" SIZE " "	2.00

TRANSDUCER SET MT-1 REQUIRES MK-2 ADAPTERS TO FIT THE MT-1 TO THE EARS.

EFFECTIVE APRIL 1, 1978

TEST EQUIPMENT

<u>MODEL & DESCRIPTION</u>	<u>MUZAK STOCK NO.</u>	<u>QUANTITIES</u>	<u>PRICE</u>
IB-1 IMPEDANDANCE BRIDGE	385-000	EACH	\$ 75.00
AT-1 AMPLIFIER TEST SET	385-001	EACH	175.00
LT-1 LINE TEST SET	385-002	EACH	260.00
TX200A FIELD STRENGTH METER	451-003	EACH	325.00
PS-2 BATTERY CHARGER FOR IB-1	587-005		10.00

EFFECTIVE APRIL 1, 1978

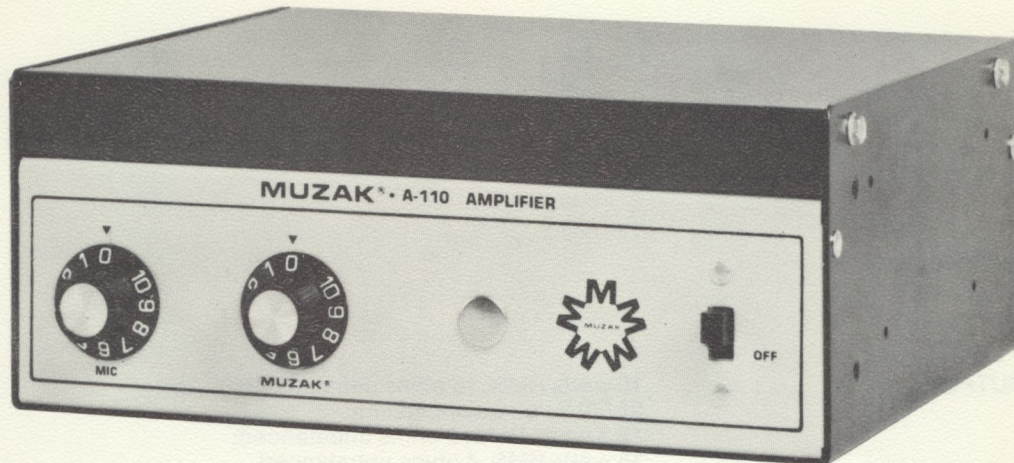
MUZAK WIRE & CABLE

<u>DESCRIPTION</u>	<u>TYPE NO.</u>	<u>STOCK NO.</u>	<u>FRANCHISE COST/1000 FT.</u>
Speaker cable 2 Cond. #20	W-220	852-015	\$24.60
Microphone cable 4 Cond. #22	W-422	852-016	43.50
RG 59/U Coaxial cable #22 Solid Copper	W-122c	152-210	45.10

Minimum order of \$125 is required

All shipments are F.O.B. at the factory location. Freight allowed to delivery point in Continental United States, except Alaska, on shipments aggregating five-hundred pounds net minimum.

All spools will contain 1000 feet \pm 10% in one piece and priced accordingly.



Model A-110

FEATURES:

- 10-15 Watts RMS power.
- Shelf or Rack mounting.
- Balanced low impedance microphone input.
- Electronic short circuit protection.
- All silicon transistor design.

GENERAL DESCRIPTION

The Muzak Model A-110 is an all silicon transistor power amplifier designed for applications where 10 to 15 watts RMS power is required.

The microphone input is balanced low impedance 50-150 ohms, with -60 dBm sensitivity and 30 dB dynamic range.

The Muzak channel input is unbalanced 25 K ohms and 300 millivolt sensitivity. An optional plug-in transformer card (UT-4) provides for balanced bridging or 600 ohm matching input. The unbalanced input is wired to a pin jack and the balanced input to screw terminals.

The microphone and Muzak channels are arranged for paging over Muzak only.

A 20 dB treble cut tone control is provided for high frequency roll-off on the Muzak channel. The tone control is recessed and accessible by screwdriver through the front panel. An optional gain limit control may be field installed to limit the range of the front panel Muzak control.

Outputs for feeding 25 volt, 70 volt ungrounded and 4 to 16 ohm loads unbalanced is provided by screw terminals.

The A-110 has electronic short circuit protection and short circuiting of any output will not damage the tran-

sistors or power supply.

The A-110 may be rack mounted by use of optional rack mount kit RM-110.

ARCHITECT'S/ENGINEER'S SPECIFICATIONS

The amplifier shall be a voltage and power amplifier employing quasi-complementary output circuit using all silicon transistor and capable of delivering 10 watts RMS into 25 or 70 volt loads and 15 watts into 4 ohms.

It shall have one low impedance balanced input microphone channel and one high impedance program channel with provision for accepting a plug-in transformer for balanced input. The program channel shall be provided with a recessed screwdriver adjust tone control for rolling off the high frequencies.

The amplifier shall have electronically controlled short circuit protective circuitry.

The amplifier shall be adaptable to rack mounting by means of associated optional brackets and panel.

NOTE: Select the desired performance specifications from the technical specifications.

The amplifier shall be listed with UL and CSA.

MUZAK AMPLIFIER A-110

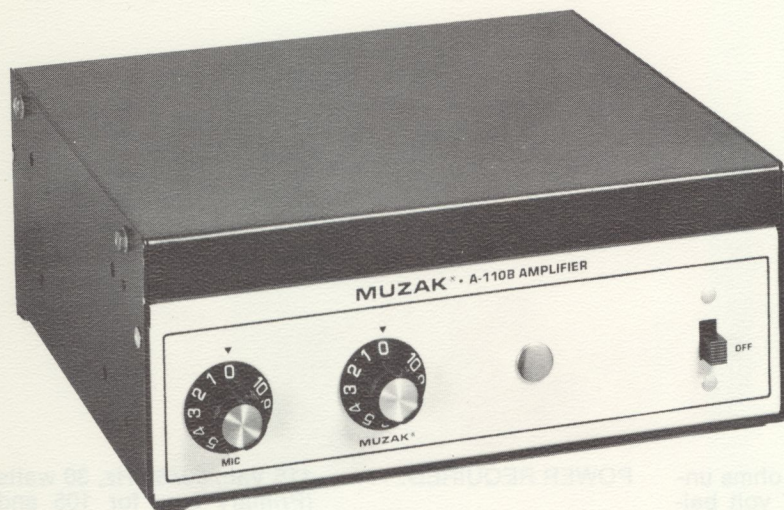
SPECIFICATIONS

POWER OUTPUT.....	10 watts RMS, 16 ohms unbalanced; 25/70.7 volt balanced line; 12.5 watts RMS, 8 ohms unbalanced; 15 watts RMS, 4 ohms unbalanced.
FREQUENCY RESPONSE.....	±1 dB, 50-15,000 Hz.
DISTORTION.....	1% or less, 50-20,000 Hz at 12.5 output.
HUM AND NOISE	
Microphone.....	60 dB below 10 watts output.
Program.....	70 dB below 10 watts output.
OUTPUTS.....	4/8/16 ohms unbalanced; 25/70.7 volt balanced line.
PROGRAM/LINE INPUT.....	25K ohm unbalanced, 10K or 600 ohms balanced with optional UT-4 transformer plug-in card.
PROGRAM/LINE SENSITIVITY.....	300 millivolts, 25K ohm unbalanced input. -10 dBm (balanced 10K ohm bridging or 0 dBm balanced 600 ohm matching with UT-4 plug-in card).
OPERATING TEMPERATURE.....	to 150°F (66°C).
OVERLOAD PROTECTION.....	Solid state protection circuit samples output stage current and disables input signal during excessive loading condition.
POWER REQUIRED.....	115 Vac, 50/60 Hz, 30 watts (primary taps for 105 and 125 Vac).
MICROPHONE INPUT.....	150 ohms balanced.
MICROPHONE SENSITIVITY.....	-60 dBm.
MUTING.....	For over-ride paging only.
RESPONSE EQUALIZATION.....	Front panel screwdriver adjustment treble cut tone control (-20 dB at 20K Hz) in Muzak channel. Microphone bass cut (-10 dB at 50 Hz). Flat response possible by change of one capacitor.
DIMENSIONS.....	8½"W x 7¼"D x 3½"H (21.6 cm W x 18.4 cm D x 8.9 cm H).
SHIPPING WEIGHT.....	4 pounds.
OPTIONAL ACCESSORIES:	
UT-4.....	Plug-in program channel matching/bridging line input card.
RM-110.....	Single unit rack mounting kit 3½" x 19" EIA standard rack. (8.8 cm H x 48.3 cm W)

UL and CSA listed.

MUZAK

MUZAK CORPORATION • 100 PARK AVENUE • NEW YORK, NEW YORK 10017



FEATURES:

- 10-15 watts rms output
- Low profile 3.5" high
- Balanced low-z microphone input
- Microphone/program inputs
- Electronic muting
- Electronic short circuit protection
- Rack mount option

GENERAL DESCRIPTION

The A-110B is a conservatively rated wide power-bandwidth 10 to 15 watt rms audio amplifier, designed for one microphone and one program source input. As many as 20 loudspeakers, tapped for 1/2 watt, may be driven from the 25 or 70.7-volt balanced output, or a single four-ohm speaker system may be driven to a full 15-watts rms from the unbalanced output.

The microphone input is 50/150 ohm balanced low-impedance with -60 dBm input sensitivity and a 30 dB dynamic range. Input connection is by means of rear panel screw terminals.

Fully electronic page mute is provided. Actuation of a simple single-pole, single-throw switch closure at the microphone location automatically mutes program channel input information and activates the microphone channel for paging purposes. This switching operation is completely free of transients.

The program channel input is 25K-ohms unbalanced, with 300 millivolt sensitivity. It is easily modified for bridging or 600-ohm matching, balanced input with the optional UT-4 plug-in transformer module. Sensitivity is -10 dBm. Rear chassis termination is either by screw terminals or phono plug for unbalanced operation; or by screw terminal connection for balanced lines.

A 20 dB treble-out tone control permits high-end roll-off of the program channel. To insure crisp voice quality the microphone input is wired for 10 dB bass roll-off. This is easily field-modified to provide flat response where desired.

Outputs, either unbalanced from four to 16 ohms, or 25 volt and 70.7 volt balanced, appear on rear panel screw terminals.

Continuous short-circuit operation of any output will damage neither transistors nor the power supply.

Attractive, low profile packaging with optional capability of rack mounting, makes the A-110B extremely flexible in application.

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The amplifier shall be the MUZAK model A-110B or equivalent. The unit shall be a voltage and power amplifier employing quasi-complementary output circuitry using all silicon transistors. The amplifier shall deliver 10 watts RMS into 25 or 70 volt loads and 15 watts into a 4 ohm load.

It shall have one low impedance balanced input microphone channel and one high impedance program channel with provision for accepting a plug-in transformer for balanced input. The program channel shall be provided with a recessed screw driver adjust tone control, and be capable of being muted electronically.

The amplifier shall have short circuit protective circuitry in addition to the regular replaceable fuse. The amplifier shall operate from power lines of 105 to 125 volt, 50 or 60 Hz. It shall be adaptable to rack mounting by optional brackets and panel. The amplifier shall be listed with UL and CSA.

NOTE: Select the desired electrical characteristics from the technical specifications.

A-110B AMPLIFIER

SPECIFICATIONS:

POWER OUTPUT: 10 watts rms — 16 ohms unbalanced; 25/70.7 volt balanced line
12.5 watts rms — 8 ohms unbalanced
15 watts rms — 4 ohms unbalanced

FREQUENCY RESPONSE: ± 1 dB, 50-15,000 Hz

DISTORTION: 1% or less, 50-20,000 Hz at 12.5W output

HUM & NOISE

MICROPHONE CHANNEL: .60 dB below 10 watts output

PROGRAM CHANNEL: 70 dB below 10 watts output

OUTPUTS: 4/8/16 ohms unbalanced; 25/70.7 volt balanced line

PROGRAM/LINE INPUT: .. 25K-ohm unbalanced, 600 ohms balanced with optional UT-4 plug-in cord

PROGRAM/LINE

SENSITIVITY: 300 millivolts, 25K ohm unbalanced input, -10 dBm (balanced 10K ohm bridging with UT-4 plug-in card). 0 dBm (balanced 600-ohm matching with UT-4 plug-in card).

OPERATING

TEMPERATURE: to 150°F (66°C)

OVERLOAD

PROTECTION: Solid state protection circuit samples output stage current and disables input signal during excessive loading condition

POWER REQUIRED: 115 Vac, 50/60 Hz, 30 watts (Primary taps for 105 and 125 Vac)

MICROPHONE INPUT: 150 ohms balanced

MICROPHONE INPUT

SENSITIVITY: -60 dBm

MICROPHONE

TERMINATION: Screw Terminals

MUTING: Electronic muting of microphone and program circuits

RESPONSE

EQUALIZATION: Front panel treble cut tone control (-20 dB at 20 kHz)
Microphone bass cut (-10 dB at 50 Hz). Flat response possible by change of one capacitor.

DIMENSIONS: 8½" W x 7¼" D x 3½" H (21.6 cm x 18.4 cm x 8.9 cm)

SHIPPING WEIGHT: 4 pounds (1.81 kg)

OPTIONAL ACCESSORIES

UT-4 Plug-in program channel matching/bridging line input card

RM-110 Rack mounting kit 3½" x 19" EIA standard rack (8.8 cm H x 48.3 cm W)

UL and CSA Listed

MUZAK

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FEATURES

- Modular Plug-in Design.
- Shelf or Rack Mounting.
- Wide Frequency Response.
- 25 Watts RMS Power at Less than 2% Distortion.
- Indication Lights for Power and maximum output.
- Overload Protection.



Model A-125

GENERAL DESCRIPTION

The Muzak Model A-125 is an all silicon transistor power amplifier capable of delivering 25 watts sine wave power at low distortion. Its wide frequency response assures full fidelity for both Muzak and voice reproduction.

The modular plug-in construction simplifies as well as reduces service and installation time.

The amplifier has provisions for two input plug-in modules which may be two low impedance balanced input microphone pre-amplifiers, (PT-3) or any of the other optional accessories listed under specifications.

The microphone preamps may be rolled off at 100 Hz by simply cutting one jumper on the board.

Muting of the program channel may be accomplished when required for paging by the page mute module (R-3). Transistor control provides smooth switching for each channel without noise. The page mute module has an adjustable mute control for setting the Muzak level desired during the paging interval.

Tone controlling of the Muzak channel is accomplished by plug-in module (TC-3). Controls for low and high frequency boost and/or roll-off are accessible from the rear.

The Muzak input impedance is 25,000 ohms unbalanced. When balanced input is required, plug-in transformer UT-3 is used. Terminal connections for both balanced 10 K ohms and unbalanced 25 K ohms are provided on the rear of the chassis.

A gain limit control is provided in the Muzak channel and is accessible from the rear.

An auxiliary high impedance input is also available through a pin jack. The auxiliary channel is normally muted by the page mute module when one is used, however, it can be wired to bypass the mute circuit.

The outputs are 70.7 volt and 25 volt ungrounded and 8 ohms grounded.

An overload protection light is provided in addition to the power pilot light to assure proper operation of the amplifier.

ARCHITECT'S/ENGINEER'S SPECIFICATIONS

The amplifier shall be a voltage and power amplifier, completely transistorized with full complementary cir-

cuit, capable of 25 watts RMS output. It shall have provision for two microphone preamplifier modules, a tone control module and electronic mute module. The microphone modules will be provided with input transformers for balanced input (50 and 150 ohm taps, and reversible printed circuit gain controls (for either external adjustment with control knob or concealed screwdriver adjustment through the front panel). The microphone modules will also have provisions for paging connection (bass cut). The microphone plug-in facility shall also provide for insertion of a plug-in telephone page adaptor with balanced input in place of one microphone module.

The music channel shall have unbalanced high impedance input convertible to balanced input with a plug-in line isolation transformer.

The music channel will also have provision for a plug-unity gain feedback type tone control network with individual bass and treble boost or cut. These controls will be screwdriver adjustable through the rear panel to prevent tampering.

A music gain limit control and an auxiliary high impedance input (with gain control) shall be included with the standard basic amplifier. These controls shall also be screwdriver adjustable through the rear panel.

A facility for a three channel plug-in electronic mute adaptor shall be provided for muting either microphone channel, the music channel or the auxiliary channel. This network shall be all electronic and shall also provide a music mute level gain control to adjust the music gain level during paging. This control shall also be screwdriver adjustable and will be standard with each mute adaptor.

In the absence of microphone preamplifiers, jumpers may be installed in the preamplifier sockets for additional high level unbalanced inputs. Maximum output and power indicator lights shall be standard with the basic amplifier.

Rack mounting shall be provided with additional brackets.

NOTE: Select required performance specifications as listed under technical specifications.

The amplifier shall be listed with UL and CSA.

MUZAK AMPLIFIER A-125

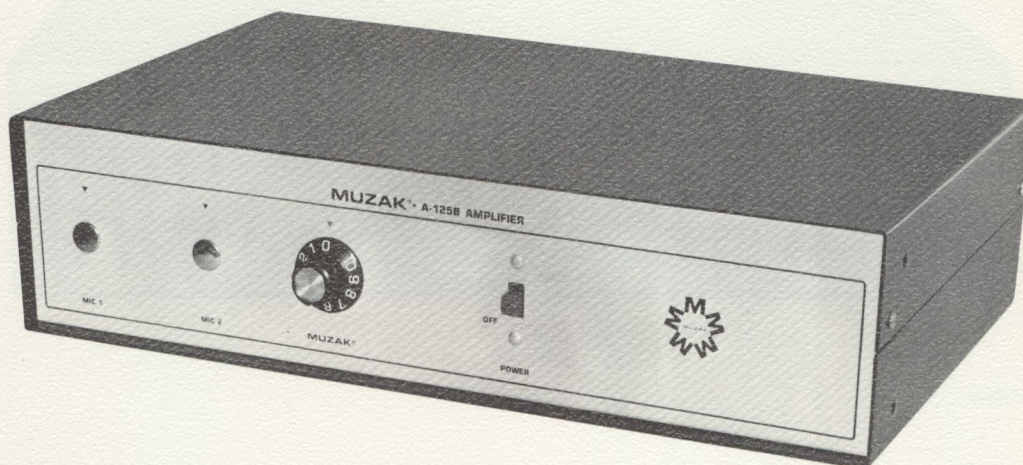
SPECIFICATIONS

POWER OUTPUT.....	25 watts RMS; 35 watts music; 50 watts peak.
DISTORTION.....	Less than 2% THD @ RMS; rated power 50-15,000 Hz.
OUTPUT REGULATION.....	2 dB.
FREQUENCY RESPONSE	
Muzak Channel.....	±1.0 dB 30-15,000 Hz; ±1.5 dB 20-20,000 Hz.
Microphone Channel.....	Equalized for speech -12 dB @ 50 Hz.
	Flat response ±2 dB 50-15,000 Hz.
Auxiliary Channel.....	±1.5 dB 20-20,000 Hz.
MUZAK TONE COMPENSATION (optional).....	Bass ±15 dB @ 50 Hz; Treble ±15 dB @ 15 kHz.
HUM AND NOISE	
Muzak Channel.....	70 dB below rated power output.
Microphone Channel.....	60 dB below rated power output.
Auxiliary Channel.....	70 dB below rated power output.
INPUTS	
Muzak.....	25K ohm standard, 10K ohm bridging impedance, balanced with optional UT-3 input transformer.
Microphone (2 optional)	50-150 ohm balanced.
Auxiliary.....	40K ohm nominal, auxiliary gain control standard.
GAIN	
Muzak Input with optional UT-3.....	54 dB.
Auxiliary.....	44 dB.
Microphone.....	108 dB.
OUTPUTS.....	8 ohm unbalanced, 25 and 70.7 ungrounded.
CONTROLS AND INDICATORS.....	Front panel—Microphone, Volume (2), Muzak Volume, on-off switch, Maximum output and power indicator lights. Rear panel (screwdriver adjust internal)—Bass, Treble, Muzak Mute Level, Gain Limit and Auxiliary Gain.
PAGING FACILITIES.....	With optional preamplifiers 1 or 2 balanced microphone input. Optional Page-Mute circuit or Telephone Page Module. Individual Microphone and Muzak muting with electronic gates.
SHORT CIRCUIT AND OVERLOAD PROTECTION.....	Diode current limiter and DC fusing.
POWER REQUIRED.....	105/115 V, 115/125 V, 125/135 V (primary taps) 50-60 Hz, 100 watts maximum (shorted output), 50 watts at RPO and 10 watts idling.
WEIGHT (Basic amplifier).....	12 pounds.
DIMENSIONS.....	13" W x 8½" D x 3½" H.
OPTIONAL ACCESSORIES	
PT-3.....	Microphone preamp.
TC-3.....	Bass and treble tone control board.
R-3.....	Electronic mute board.
TA-3.....	Telephone input board.
EB-3.....	Electronic Buzzer.
EC-3.....	Chime Oscillator board.
ES-3.....	Electronic Siren.
UT-3.....	Line input transformer.
RM-125.....	Rack Mounting Brackets.

UL and CSA listed.

MUZAK

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Model A-125B

FEATURES:

- Basic power amplifier—with optional dual-mixer inputs
- Excellent performance
- Built-in muting/tone controls
- 4 & 8 ohm unbalanced/25V and 70.7V balanced outputs

GENERAL DESCRIPTION:

The Muzak Model A-125B, 25-watt unit consists of a basic power amplifier, expandable by the use of plug-in modules, to provide a wide variety of optional input functions ranging from low-impedance microphone and equalized phono preamplifiers to specialized chime/siren effects (see accessory listing). Any combination of two input modules can be accommodated.

The basic amplifier includes as standard features a high-impedance auxiliary input directly to the power amplifier, a 25K-ohm unbalanced program line-level input (convertible to 15K-ohm balanced bridging operation with the optional UT-3 transformer); ± 15 dB treble/bass control of the program input channel and electronic muting circuitry for use when the optional microphone preamplifier modules are used.

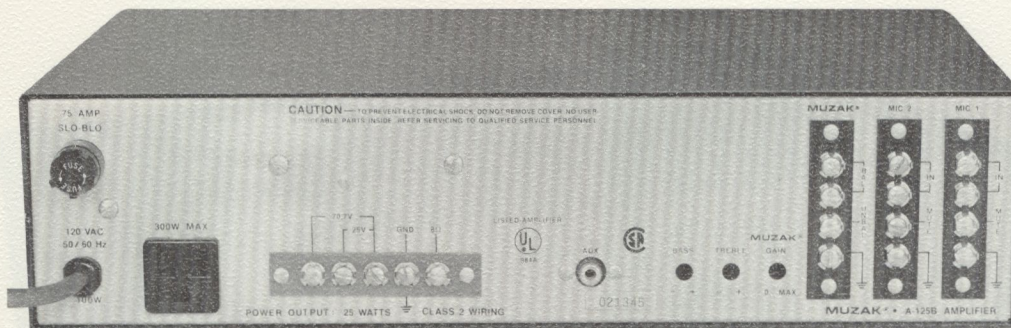
The A-125B provides full 25-watt rms output to loads varying from 4 to 8 ohms unbalanced to 25-volt or 70.7-volt balanced lines.

Short-circuit and overload protection are designed into the A-125B. The line-level input includes a screwdriver-adjust internal gain limit control and the tone compensation controls are also of this type to prevent tampering by non-technical personnel after installation adjustments have been made.

The A-125B performance characteristics are excellent with less than 1.0% total harmonic distortion at full 25-watt sine wave output and ± 1.0 dB frequency response from 50 to 15,000 Hertz through the program channel input. An unswitched auxiliary power receptacle is provided for powering external accessory equipment. The inputs and outputs appear on rear-chassis screw-type terminal strips.

The A-125B is finished in Muzak blue and gray and may be readily rack-mounted with the accessory RM A125B Adaptor Kit.

MUZAK AMPLIFIER A-125B



SPECIFICATIONS

POWER OUTPUT 25 watts, rms
37.5 watts, music
50 watts, peak

DISTORTION Less than 1.0% at 25 watts,
rms output; 50 to 15,000 Hz

OUTPUT REGULATION 2.0 dB or less

FREQUENCY RESPONSE

Program Input ± 1.0 dB, 40-15,000 Hz

Microphone Input (with optional PT-3
module) ± 2.0 dB, 50-15,000 Hz (flat response)
-12.0 dB @ 50 Hz (equalized for speech)

Auxiliary Input ± 1.0 dB, 40-15,000 Hz

TONE CONTROLS

(Program Channel) Bass: ± 15 dB @ 50 Hz
Treble: ± 15 dB @ 15,000 Hz

HUM & NOISE LEVEL

(below +44 dBm Output):

Program or Auxiliary Inputs -75 dB

Microphone Input (with optional
PT-3 module) -55 dB

INPUTS

Program 25K-ohm unbalanced; 15K-ohm
balanced bridging w/optional UT-3 transformer

Auxiliary 40K-ohm unbalanced (phono
jack termination).

Optional (Two) See Accessory List for optional
plug-in modules.

OVERALL GAIN

Program Input (with UT-3 transformer) 60 dB

Auxiliary Input 60 dB

Microphone (with PT-3 module) 112 dB

OUTPUTS 4 & 8 ohms unbalanced; 25-volts
& 70.7 volts, balanced.

MUTING Electronic channel switching.
Normally, microphone channel "off", program
channel "on". Grounding mute terminal turns
microphone channel "on" and program
channel, "off".

CONTROLS/INDICATORS

Front Program volume
Microphone (one or two optional)
Power on/off (illuminated)

Rear Bass, treble, and program gain
limit (screwdriver adjustable).

POWER

REQUIREMENTS 105/115, 115/125 Vac (primary taps)
60 Hz. 50 watts @ RPO; 10 watts idling;
200 watts, short circuited output.

WEIGHT 10 pounds

DIMENSIONS 14" (35.6 cm) wide
3 1/2" (8.9 cm) height
9 1/4" (23.5 cm) deep

ACCESSORY LIST

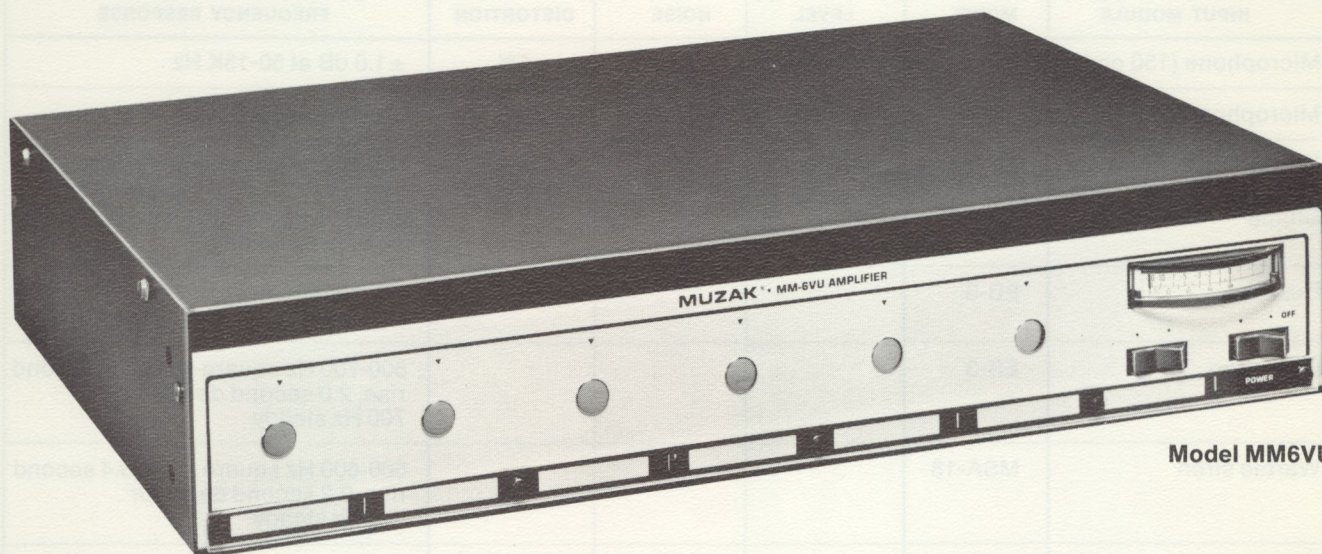
PT-3 150-ohm balanced microphone preamplifier module
TA-3 Telephone page adaptor (balanced bridging) module
EC-3 Electronic chime module
ES-3 Siren (wail and steady tone) module
EB-3 Electronic buzzer module
UT-3 15K-ohm bridging transformer
RMA125B Rack Mount Adaptor Kit

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MODEL MM6VU MODULAR 6 INPUT MIXER/LINE AMPLIFIER



Model MM6VU

FEATURES

- Full plug-in system flexibility
- Electronic muting
- Dual channel capability
- + 4 dBm 600 OHM balanced output

GENERAL DESCRIPTION

The Muzak MM6VU Mixer/Line Amplifier affords the ultimate in functional flexibility. The basic unit contains the power supply and (1) MSA-7 line amplifier module. By selection of appropriate plug-in modules, a total of six input functions, controllable from the front panel may be accommodated. These include balanced low-impedance or unbalanced high-impedance microphone inputs; ceramic or magnetic-phono inputs; balanced bridging or unbalanced line level inputs; telephone paging; siren wail, warble or steady tone inputs; electronic chime and buzzer inputs; compressor/limiter module; master gain control, and remote master or unbalanced high impedance gain control.

In addition to the above front-access modules, the MM6VU accepts plug-in modules for electronic muting, intermediate functions (tone/filter/compression) and an additional line output amplifier. Two module spaces each are available for the muting, intermediate, and line

output functions. The electronic muting module (R-3) controls one to three inputs. Two R-3's may be accommodated in the MM6VU. A combination of two intermediate function modules for bass and treble control, active bandpass filtering or compression/limiting may be accommodated.

A second MSA-7 line amplifier module for dual channel or parallel output operation may be added.

The front panel controls, depending on the module functions used, may be appropriately labelled. A front panel identification strip with a clear view plastic protector is provided.

An output VU meter switchable to the two line outputs and AC power switch are located on the front panel.

The RM-175 kit is available for rack-mount application of the MM6VU. 3½" of vertical rack height is required. The MM6VU is finished in Muzak Blue and white.

MUZAK MODULAR 6 INPUT MIXER/LINE AMPLIFIER - MODEL MM6VU

SPECIFICATIONS (With Typically Used Input Modules)

INPUT MODULE	MODEL	LEVEL	NOISE	DISTORTION	FREQUENCY RESPONSE
Microphone (150 omh)	PT-3	-60 dBm	-62 dB	.5%	± 1.0 dB at 50-15K Hz
Microphone (Hi-Z)	MSA-16	2 MV	-62 dB	.5%	± 1.0 dB at 50-15K Hz
Telephone page	TA-3	-10 dBm	-67 dB	.8%	Down 10 dB at 30 and 12K Hz
Chime	EC-3				700 Hz damped sine wave 1.5 second duration
Buzzer	EB-3				2.0 millisecond pulse repeated at rate of 300 PPS
Wail siren	ES-3				500-700 Hz square wave 7.0 second rise, 2.0 second decay or 700 Hz steady
Warble siren	MSA-18				500-600 Hz square wave 0.4 second rise, 0.2 second decay or 700 Hz steady
Magnetic phono	MSA-15	2.5 MV	-55 dB	.5%	RIAA Curve
Ceramic phono	MSA-14	4V	-60 dB	.8%	± 1.0 dB at 30-20K Hz
High level (unbal)	MSA-11	250 MV	-65 dB	.8%	± 1.0 dB at 30-20K Hz
High level (bal)	MSA-10	-10 dBm	-65 dB	.8%	± 1.0 dB at 30-20K Hz
Remote gain control	MSA-21	150 MV	-65 dB	.8%	60 dB attenuation (minimum)

Overload Points

Low microphone input-35 dBm
 Line amplifier output + 14 dBm
 High microphone input-27 dBm
 Balanced bridging input0 dBm

Bus to Bus Crosstalk-6 dB @ 1 kHz

Dimensions(W) 17½" (D) 12" (H) 3½"

Power Required120 VAC, 60 Hz, 20 W.
 (12 VDC, 100 mA and + 27 VDC, 200 mA
 for battery operation)

Accessory Terminations(A) 120 VAC, 300W
 receptacle, unswitched.

(B) + 12 and + 27 VDC power plug
 (for MS-201 slave unit, or battery input).

(C) Buss 1 and 2 input jack.

(D) Input/output connection
 screw terminals.

Other Plug-in Modules

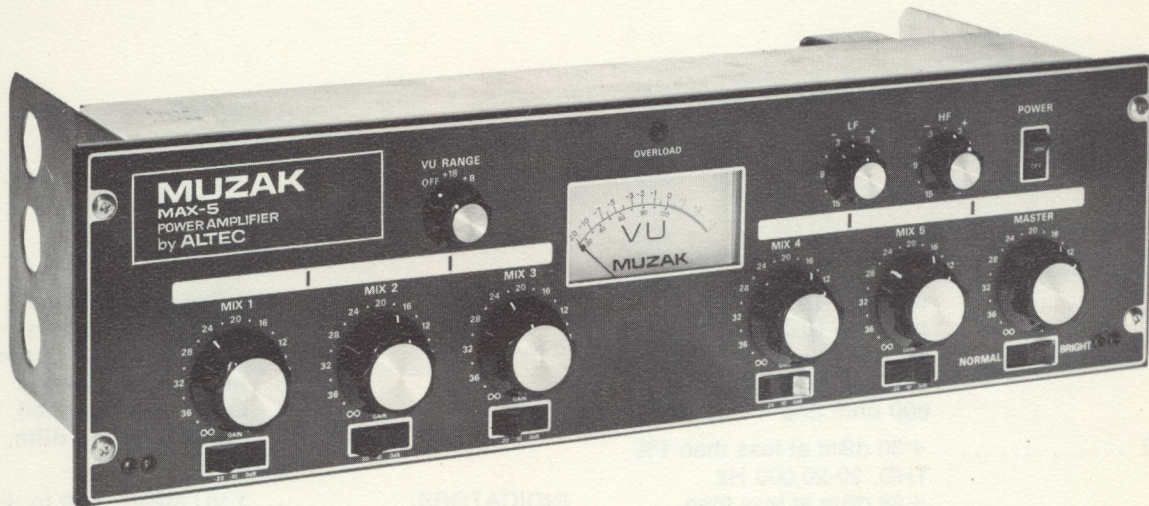
TC-3Tone control, bass and treble
 R-3Electronic mute
 MSA-7Line amplifier
 MSA-8Compressor/limiter (short card)
 MSA-9Compressor/limiter (long card)
 MSA-12Master gain
 MSA-13Bandpass filter

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MODEL MAX-5 MIXER AMPLIFIER (by ALTEC)



GENERAL DESCRIPTION

The MODEL MAX-5 Mixer Amplifier controls and mixes up to five independent input signals and delivers up to +30 dBm of output power. Optional plug-in accessories allow each of the five input channels to be used for microphone or high-level line sources. Other features include connections for parallel coupling of two or more MAX-5's and protective circuitry for output transistors. The MAX-5 can be rack-mounted. It occupies three vertical units of rack space (5¼").

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The mixer amplifier shall have five mixer inputs, each usable with microphone or high-level devices. It shall operate from a 120/240V ac, 50/60 Hz line or from a 24/28V dc battery. It shall contain a protective circuit for the output transistors and 5 octal sockets for input accessory modules. The mixer amplifier shall meet the following criteria. Gain; 87 dB with microphone pre-amplifier, 38 dB with line-bridging transformer. Power output: +30 dBm at less than 1% THD, 20-20,000 Hz; +28 dBm at less than 0.5% THD, 35-20,000 Hz. Frequency response; ± 1 dB, 20-20,000 Hz. Source impedance; 150/250 ohms nominal with microphone pre-amplifier, 15,000 ohms with line-bridging transformer. Load impedance, 150 and 600 ohms (transformer-isolated output). Nominal output impedance, 120 ohms. Noise level: -129 dBm equivalent input noise, 20-20,000 Hz; output noise at least 85 dB below full output with MASTER gain control open and all MIX gain controls closed. Dimensions, 5¼"H x 19"W x 6½"D. Weight, 10½ pounds.

The mixer amplifier shall be the MUZAK Model MAX-5.

MUZAK MIXER AMPLIFIER MAX-5

SPECIFICATIONS

GAIN: 87 dB w/1588C (may be reduced 10 or 20 dB w/gain switch)
38 dB w/UT-5 bridging
600 ohm line

OUTPUT: +30 dBm at less than 1% THD, 20-20,000 Hz
+28 dBm at less than 0.5% THD, 35-20,000 Hz

TOTAL HARMONIC DISTORTION (THD): ... Typically less than 0.2%

FREQUENCY RESPONSE: ± 1 dB, 20-20,000 Hz

INPUT IMPEDANCE — W/1588C PRE-AMP: 150/250 ohms nominal source impedance (balanced input)

W/UT-5: 15,000 ohms (balanced bridging input)

LOAD IMPEDANCE: 150 and 600 ohms (transformer-isolated output)

OUTPUT IMPEDANCE: 120 ohms nominal

NOISE LEVEL: -129 dBm equivalent input noise, 20-20,000 Hz
Output noise at least 85 dB below full output with Master gain control fully open and all Mix controls closed

CONTROLS — POTENTIOMETERS: ... 5 Mix gain, 1 Master gain, 1 LF tone, 1 HF tone (each continuously variable)

SWITCHES: 1 Power, 5 Gain (-20, -10, 0 dB), 1 Normal-Bright (3-5 kHz response rise), 1 Tone Control Out-In (inside panel), 1 VU Range (Off, +8 dBm, +18 dBm)

INDICATORS: 1 VU meter, -20 to +3 VU, illuminated
1 red overload lamp

CONNECTIONS — INPUTS: 5 XLR3-31 receptacles (Input 1—Input 5)
5 octal sockets (input accessories)
2 Master Multiple phono pin tip jacks
2 Batt 24/28V terminals

OUTPUTS: 150/600 ohm terminals
GND, 1, 2, 3, 4

POWER REQUIREMENTS: 120/240V ac, 50/60 Hz, 16W
— or —
24/28V dc at 0.3A
Battery minus (—) is ground.
Automatic transfer to dc mode if ac power fails.

OPERATING TEMPERATURE RANGE: Up to 55°C (131°F)

DIMENSIONS: 5¼" (13.3 cm) H
19" (48.3 cm) W
6½" (16.5 cm) D

WEIGHT: 10½ pounds (4.76 kg)

COLOR: Black and Silver

ACCESSORIES (MUST BE ORDERED SEPARATELY): 1588C, Mic Preamp, UT-5 line transformer

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MODEL MA-50 POWER AMPLIFIER (by ALTEC)



GENERAL DESCRIPTION

The MA-50 Power Amplifier is a solid-state unit delivering 50 watts of power at less than 1% total harmonic distortion (THD) from 45 Hz to 20 kHz. The amplifier provides outputs for 25V and 70-volt line output for distribution systems. In addition to the high impedance input, the amplifier has an octal socket to accept a line-isolation transformer. A selectable high pass filter is included for use in speech systems. Cut-off frequency of the filter is 500 Hz.

The MA-50 is capable of operation from a 120V or 240V ac source or a negative grounded 28V dc source, and features silent, automatic transfer to dc operation if ac power fails. A trickle charging current maintains battery charge when the amplifier is operated in the ac mode.

Designed for rack mounting, the MA-50 occupies three vertical units of rack space (5¼"). A hinged front panel allows servicing without removing the amplifier from the rack.

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The power amplifier shall be capable of operating from a 120/240V ac line or from a 24/28V dc battery. The power supply shall automatically transfer the power to dc operation if ac power fails. An octal socket shall be provided on the rear panel for installation of an accessory line transformer. The front panel shall be hinged to permit access to the chassis interior without removing the amplifier from the equipment rack.

The power amplifier shall meet the following performance criteria. Gain, 61 dB. Input sensitivity, 0.8V rms for rated output. Power output, 50 watts at less than 1% THD from 45 Hz to 20 kHz. Frequency response, ± 1 dB from 20 Hz to 20 kHz. Input impedance: 15,000 ohms (potentiometer), 15,000 ohms balanced with line bridging transformer. Load voltage; 25 and 70 volts. Output impedance, less than 10% of nominal load impedance. Noise level, -38 dBm or 85 dB below rated output. Operating temperature range, up to 55°C (131°F) ambient. Dimensions, 5¼"H x 19"W x 7¾"D. Weight, 23 pounds. Color, black and silver.

The power amplifier shall be the MUZAK Model MA-50.

MUZAK POWER AMPLIFIER MODEL MA-50

SPECIFICATIONS

TYPE: Power Amplifier
GAIN: 61 dB
INPUT SENSITIVITY: ... 0.8 volt rms for rated output
POWER OUTPUT: 50 watts at less than 1% THD, 45 to 20,000 Hz
FREQUENCY RESPONSE: ± 1 dB, 20 to 20,000 Hz
INPUT IMPEDANCE: 15,000 ohms (potentiometer)
 15,000 ohms balanced with UT-5 transformer
LOAD VOLTAGE: 25V and 70 volts
OUTPUT IMPEDANCE: Less than 10% of nominal load impedance
NOISE LEVEL: -38 dBm or 85 dB below rated output
CONTROLS: Potentiometer, continuously variable screw driver adjust, on rear panel
POWER SUPPLY: 120/240 volts 50/60 Hz
 13 watts at zero signal
 85 watts at 17 watts output
 145 watts at 50 watts output
 — or —
 24/28 volts dc battery (—) is ground
 0.2 amp at zero signal
 2.5 amps at 17 watts output
 4.0 amps at 50 watts output

OPERATING

TEMPERATURE RANGE: Up to 55°C (131°F) ambient

SPECIAL FEATURES: .. Automatic transfer from ac to dc power in the event of ac power failure
 Dissipation sensing device for protection of output transistors
 High-pass filter

DIMENSIONS: 5¼"H x 19"W x 7¾"D
 (13.33 cm H x 48.26 cm W x 18.73 cm D)

WEIGHT: 23 pounds (10.45 kg)

COLOR: Black and silver

ACCESSORIES (MUST BE

ORDERED SEPARATELY): UT-5 Plug-in Bridging Transformer

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MODEL MA-100 POWER AMPLIFIER (by ALTEC)



GENERAL DESCRIPTION

The MA-100 Power Amplifier delivers in excess of 100 watts of power at less than 1% total harmonic distortion (THD) from 35-20,000 Hz. It has a high-impedance direct input and an octal socket to accept a line-matching or line-bridging transformer. A selectable high-pass filter having a cutoff frequency of 500 Hz is available to provide driver protection in speech reinforcement systems.

The MA-100 provides transformer-isolated outputs for 25V and 70V line output for distribution systems.

The MA-100 operates from a 120V or 240V ac source or from a 28V dc battery. Designed for rack mounting, the MA-100 is four rack units high (7½") and 8½ inches deep. A hinged front panel allows servicing without removing the amplifier from the rack.

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The power amplifier shall be capable of operating from a 120/240V ac line or from a 24/28V dc battery. The power supply shall automatically transfer the power to dc operation if ac power fails. An octal socket shall be provided on the rear panel for installation of an accessory line transformer. The front panel shall be hinged to permit access to the chassis interior without removing the amplifier from the equipment rack.

The power amplifier shall meet the following criteria. Gain, 64 dB. Input sensitivity, 0.8V rms for rated output. Power output, 100 watts at less than 1% THD from 35-20,000 Hz. Frequency response, ± 1 dB from 20-20,000 Hz. Input impedance; 15,000 direct or balanced with line-bridging transformer accessory. Load voltage; 25V and 70.7 volts. Output impedance, less than 10% of nominal load impedance. Noise level, 85 dB below rated output. Operating temperature range, up to 55°C (131°F). Dimensions, 7" H x 19" W x 8½" D. Weight, 35 pounds. Color, black and silver.

The power amplifier shall be the MUZAK Model MA-100.

MUZAK AMPLIFIER MA-100

SPECIFICATIONS

TYPE: Power Amplifier
 GAIN: 64 dB
 INPUT SENSITIVITY: ... 0.8V rms for rated output
 POWER OUTPUT: 100 watts at less than 1% THD, 35-20,000 Hz
 FREQUENCY RESPONSE: ± 1 dB, 20-20,000 Hz
 INPUT IMPEDANCE: 15,000 ohms (potentiometer 15,000 ohms balanced with UT-5 Line Transformer
 LOAD VOLTAGE: 25V and 70.7 volts
 OUTPUT IMPEDANCE: . Less than 10% of nominal load impedance
 NOISE LEVEL: 85 dB below rated output
 GAIN CONTROL: Potentiometer, continuously variable, screw driver adjust on rear panel
 POWER REQUIRED: 120/240V ac, 50/60 Hz
 20 watts at zero signal
 290 watts at 100 watts output
 — or —
 24/28V dc (battery (-) is ground)
 0.2 amp at zero signal
 8.5 amps at 100 watts output

OPERATING

TEMPERATURE RANGE: Up to 55°C (131°F) ambient

SPECIAL FEATURES: .. Dissipation sensing circuit for protection of output transistors
 Automatic transfer from ac to dc power if ac power fails
 High-pass filter (500 Hz cutoff)

DIMENSIONS: 7" (17.8 cm) H
 19" (48.3 cm) W
 8½" (21.6 cm) D

WEIGHT: 35 pounds (15.88 kg)

COLOR: Black and silver

ACCESSORIES (MUST BE ORDERED SEPARATELY): .. UT-5 Line Transformer

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MODEL MA-200 POWER AMPLIFIER (by ALTEC)



GENERAL DESCRIPTION

The MODEL MA-200 Power Amplifier is designed for applications where uninterrupted operation is a requisite. The MA-200 provides 200 watts of power at less than 1% total harmonic distortion (THD) from 50 Hz to 12 kHz, and has a frequency response of ± 1 dB from 20 Hz to 20 kHz. Output transformer taps provide connections for 25V and 70.7-, volt line distribution systems. The MA-200 features silicon solid-state circuitry, a switchable high-pass filter for use in speech systems, input connections for high-impedance devices and for 15,000-ohm balanced inputs, fail-safe protection for output transistors, and a hinged front panel for rapid access to the chassis interior.

The MA-200 is capable of operation from a 120V or 240V ac source or a negative grounded 28V dc source. A trickle charging current maintains battery charge when the amplifier is operated in the ac mode.

Designed for rack-mounted use, the MA-200 occupies six units of vertical rack space (10½").

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The power amplifier shall be capable of operating from a 120/240V ac line or from a 24/28V dc battery. The power supply shall automatically transfer the power to dc operation if ac power fails. An octal socket shall be provided on the rear panel for installation of an accessory line transformer. The front panel shall be hinged to permit access to the chassis interior without removing the amplifier from the equipment rack.

The power amplifier shall meet the following performance criteria. Gain, 67 dB. Input sensitivity, 0.8V rms for rated output. Power output, 200 watts at less than 1% THD from 50 Hz to 12 kHz. Frequency response, ± 1 dB from 20 Hz to 20 kHz. Input impedance, 15,000 ohms. Load voltage 25 and 70.7, volts. Output impedance, less than 25% of nominal load impedance. Noise level, output noise 85 dB below rated output. Operating temperature range, up to 55°C (131°F) ambient. Dimensions, 10½"H x 19"W x 8¼"D. Weight, 41 lbs. Color, black and silver.

The power amplifier shall be the MUZAK Model MA-200.

MUZAK AMPLIFIER MA-200

SPECIFICATIONS

TYPE: Power amplifier
GAIN: 67 dB
INPUT SENSITIVITY: ... 0.8V rms for rated output
POWER OUTPUT: 200 watts at less than 1% THD from 50 Hz to 12 kHz
FREQUENCY RESPONSE: ± 1 dB from 20 Hz to 20 kHz
INPUT IMPEDANCE: 15,000 ohms
15,000 ohms balanced with UT-5 Line Transformer
LOAD VOLTAGE: 25 and 70.7 volts
OUTPUT IMPEDANCE: Less than 25% of nominal load impedance
NOISE LEVEL: Output noise 85 dB below rated output
OPERATING TEMPERATURE RANGE: Up to 55°C (131°F)
CONTROLS: 1 Volume control, continuously variable, on rear panel
1 power On-Off switch
1 high-pass filter switch

POWER REQUIRED: 120/240V ac, 50/60 Hz
25W at zero signal
420W at 200W output
— or —
24/28V dc (battery (—) is ground)
0.2A at zero signal
14A at 200W output

SPECIAL FEATURES: .. Automatic transfer from ac to dc power in the event of ac power failure.
Dissipation sensing circuit for protection of output transistors. High-pass filters.

DIMENSIONS: 10½"H x 19"W x 8¼"D
(26.7 cm H x 48.3 cm W x 21.0 cm D)

WEIGHT: 41 lbs. (18.6 kg)

COLOR: Black and silver

ACCESSORIES (MUST BE ORDERED SEPARATELY): UT-5 Line Bridging Transformer

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FEATURES

- Modular Plug-in Design.
- Shelf or Rack Mounting.
- Wide Frequency Response.
- 75 Watts RMS Power.
- Less than 2% Distortion at full power.
- Expandable to four balanced microphone inputs.
- Electronic Muting.
- Overload Indicating Lights.



Model A-175

GENERAL DESCRIPTION

The Muzak Model A-175 is an all silicon transistor power amplifier designed to deliver continuously 75 watts RMS power. Its wide frequency response assures full fidelity for both Muzak and voice reproduction.

The A-175 has modular construction to simplify service and installation requirements. The amplifier has provisions for accepting up to four optional plug-in microphone pre-amplifiers, (PT-3). Any of the four microphone positions may be used to accommodate, instead any of the optional accessories listed under specifications.

When required, 100 Hz roll-off in the microphone pre-amplifier is easily accomplished by cutting a jumper on the board. The microphone modules are arranged so that the gain controls can be reversed if concealed volume adjustment is required.

Program muting is performed by the use of the page/mute module (R-3). The R3 is controlled by any one of the four microphone positions. Since the switching is done electronically, the transition is smooth, without pops or clicks. The R3 mute module has an adjustable mute level control to reduce the Muzak level during paging.

Tone controlling of the Muzak channel is accomplished by plug-in module TC-3 which allows low and high frequency boost/and or roll-off. The controls are accessible on the rear of the chassis.

A gain limit control is provided in the Muzak channel. The input impedance is 25K ohms and unbalanced. When balanced input is required, plug-in input transformer UT-3 is used. Terminal connections for both balanced 10K ohms and 25K ohms unbalanced are provided.

An auxiliary high impedance input with control is also available through a pin jack. The auxiliary channel is normally fed through the mute module when one is used, however, it can be wired to bypass the mute circuit.

The outputs are 70.7 volt and 25 volt ungrounded and 8 ohms grounded.

Clipping and overload lights are provided to assure proper operation of the amplifier.

ARCHITECT'S/ENGINEER'S SPECIFICATIONS

The amplifier shall be completely transistorized with

complimentary circuitry, capable of continuous 75 watts RMS output and shall be rated at 105 watts music power and 150 watts peak power. It shall have provision for up to four microphone pre-amplifier modules, a tone control module, and two electronic mute modules. The microphone modules shall have transformers for balanced input (50 and 150 ohm taps), and reversible printed circuit gain controls (for either external adjustment with control knob or concealed screwdriver adjustment through the front panel). The microphone modules will also have provisions for paging connection (bass cut). The microphone plug-in facility shall also provide for insertion of a telephone page adaptor with balanced input in place of one microphone module.

The music channel shall have unbalanced high impedance input convertible to balanced input with a line transformer.

The music channel will have provision for a plug-in unity gain tone control network with individual bass and treble control of ± 15 dB. These controls will be screwdriver adjustable through the rear panel to prevent tampering.

A music gain limit control and an auxiliary high impedance input (with gain control) shall be included with the standard basic amplifier. These controls shall also be screwdriver adjustable through the rear panel. A facility for two plug-in electronic mute adaptors shall be provided for muting microphone channels, the music channel and the auxiliary channel. This network shall be all electronic (no relays) and shall also provide a Music Mute Level gain control to adjust the music gain level during paging. This control shall also be screwdriver adjustable and will be standard with each mute adaptor.

In the absence of microphone pre-amplifiers, jumpers may be installed in the pre-amplifier sockets for additional high level unbalanced inputs. Clipping, overload and Power Indicator Lights shall also be standard with the basic amplifier.

Rack mounting shall also be provided with optional brackets.

NOTE: Select required performance specifications as listed under technical specifications.

The amplifier shall be listed with UL and CSA.

MUZAK AMPLIFIER A-175

SPECIFICATIONS

POWER OUTPUT.....	75 watts RMS; 105 watts music; 150 watts peak.
DISTORTION.....	Less than 2% THD @ 75 watts RMS; 50-15,000 Hz.
OUTPUT REGULATION.....	Better than 2 dB.
FREQUENCY RESPONSE	
Muzak Channel.....	±1.0 dB 30-15,000 Hz; ±2.0 dB 20-20,000 Hz.
Microphone Channel.....	Equalized for speech -12 dB @ 50 Hz. Flat response ±2 dB 40-15,000 Hz.
Auxiliary Channel.....	±2.0 dB 20-20,000 Hz.
MUZAK TONE COMPENSATION (optional).....	Bass ±15 dB @ 50 Hz; Treble ±15 dB @ 15 kHz.
HUM AND NOISE	
Muzak Channel.....	70 dB below +49 dBm.
Microphone Channel.....	50 dB below +49 dBm.
Auxiliary Channel.....	70 dB below +49 dBm.
INPUTS	
Muzak.....	25 K ohm (nominal) 10 K ohm bridging with UT-3 optional transformer.
Auxiliary.....	40 K ohm nominal, auxiliary gain control standard.
Microphones (4 optional).....	50-150 ohm balanced transformer input.
GAIN	
Muzak Input with optional UT-3.....	59 dB.
Auxiliary.....	49 dB.
Microphone.....	113 dB.
OUTPUTS.....	8 ohm unbalanced, 25 and 70.0 V ungrounded.
CONTROLS AND INDICATORS.....	On front panel: Microphone Volume (up to four), Muzak Volume, Power ON-OFF. Clipping, Power and Overload lights. On rear panel: (screw driver adjust-internal)—Bass, Treble Muzak Mute Level (Two), Gain Limit and Auxiliary Gain.
PAGING FACILITIES.....	With optional preamplifiers 1 to 4 balanced microphone inputs, Optional Page-Mute circuit or Telephone Page Module. Individual Microphone and Muzak muting with DTL gates.
SHORT CIRCUIT AND OVERLOAD PROTECTION.....	Transistor/Diode current limiter and DC fusing.
POWER REQUIREMENTS.....	105/115 V, 115/125 V, (primary taps) 50-60 Hz. 200 watts maximum (shorted output), 150 watts at RPO and 25 watts idling.
DIMENSIONS.....	17½" W x 12¼" D x 3½" H.
WEIGHT (Basic amplifier)	25 pounds.
OPTIONAL ACCESSORIES	
PT-3.....	Microphone Preamplifier
TC-3.....	Tone Control Board
R-3.....	Electronic Mute Board
TA-3.....	Telephone Input Board
EB-3.....	Electronic Buzzer
EC-3.....	Chime Oscillator Board
ES-3.....	Electronic Siren
UT-3.....	Line Input Transformer
RM-175.....	Rack Mounting Bracket

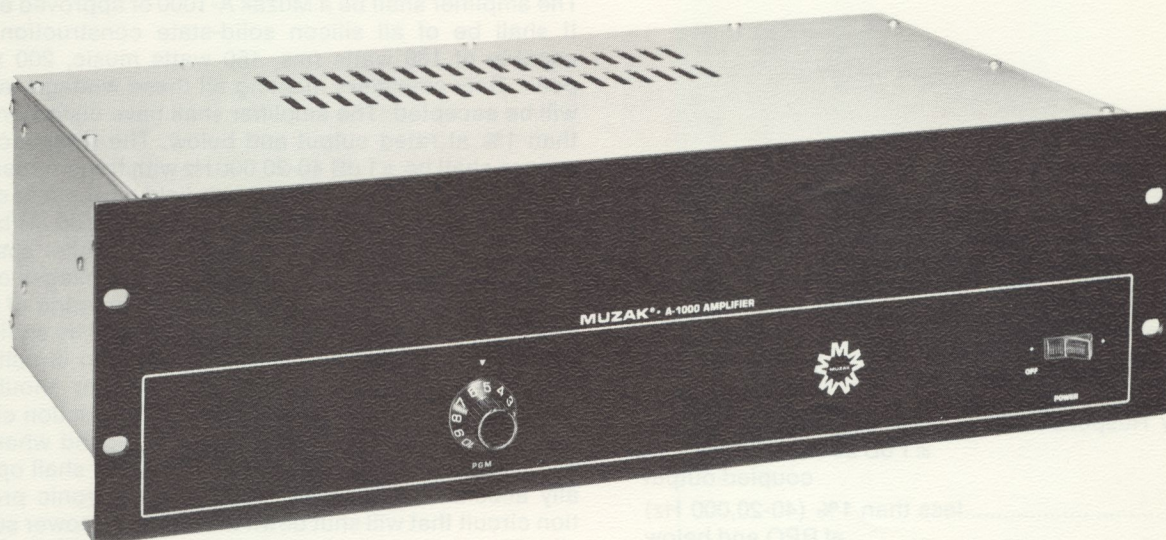
UL and CSA listed.

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MUZAK®

MODEL A1000 100 WATT POWER AMPLIFIER



FEATURES

- Less than 1% distortion
- 40-20,000 Hz full power frequency response
- Unbalanced 4, 8, & 16 ohm outputs
- Current sensing overload protection
- Bass cut switch for horn speaker use
- Balanced 70.7 & 25 volt outputs

GENERAL DESCRIPTION

The A-1000 is a 100 watt rms solid-state transistorized amplifier designed for low distortion output over a full power bandwidth of 40-20,000 Hz. The low frequency response of the amplifier can be extended to 20 Hz when operated with the field convertible direct coupled output.

The amplifier utilizes plug-connected printed circuit board construction, with power transistors and power supply components mounted and placed for maximum accessibility. Computer grade capacitors, conservatively-rated transformers and heat sinks contribute to maximum performance and reliability.

The A-1000 accommodates either an unbalanced high impedance or a balanced 600 ohm program input. The balanced input utilizes a transformer, factory wired for 600 ohms matching. It is easily field modified for 10K ohms bridging without additional components.

The front panel gain control may be transferred to the rear panel where that location is preferred.

The A-1000 amplifier features an overload protection, fast-acting current-limiting electronic circuit that auto-

matically disables amplifier drive should a potentially harmful overload occur. An optional M-GUARD EF-3 Electronic Fuse is available to supplement the standard current sensing protective circuit. The M-GUARD upon sensing a fault, shuts down the amplifier power supply protecting the output devices in the amplifier. M-GUARD action is instantaneous and rapidly restores the amplifier to operation when the short or overload is removed.

The A-1000 amplifier has 70.7 V and 25 V balanced outputs, plus 4, 8, and 16 ohm unbalanced outputs. Input and output connections are on convenient screw terminals.

The amplifier output may be directly coupled to a 4 ohm load. When so operated, the low-end frequency response is extended to 20 Hz.

A bass cut switch tailors the amplifier response (14 dB down at 100 Hz) in installations where horn speakers are utilized.

The A-1000 amplifier, styled in MuZak Blue is designed for direct mounting in a 19" rack. An attractive desk top cabinet is available.

Model A1000

MUZAK 100 WATT POWER AMPLIFIER - MODEL A1000

SPECIFICATIONS

Power Output	100 watts rms 150 watts music 200 watts peak
Frequency Response	± 1 dB 40-20,000 Hz ± 1 dB 20-20,000 Hz direct coupled output
Distortion	less than 1% (40-20,000 Hz) at RPO and below
Hum and Noise (Program)	85 dB below RPO
Program Input	Unbalanced 25K ohms and balanced 10K ohms bridging or balanced 600 ohms matching
Input Sensitivity	0.4 volts unbalanced 0 dBm 600 ohms matching -10 dBm 10K ohms bridging
Outputs	Balanced 70.7 volts and 25 volts unbalanced 4, 8, and 16 ohms. Unbalanced 4 ohm direct output
Controls	Program Gain Power on/off
Power Requirement	105-115 Vac or 115-125 Vac or 125-135 Vac 50/60 Hz 250 watts
Dimensions	5 $\frac{1}{4}$ " (13.3 cm) high 19" (48.3 cm) wide 6 $\frac{1}{4}$ " (15.9 cm) deep
Weight	26 lbs. Shipping weight 28 lbs.
Operating Temperature	Full Performance to 150° F (65° C)
Finish	Muzak Blue
Ordering Information	
A-1000	100 watt rms Basic Amplifier
Accessories	
EF-3	M-GUARD Electronic Fuse
DTC-2	Desk Top Cabinet

All tests conducted in accordance with EIA Standard SE-101-A where applicable

ARCHITECT'S/ENGINEER'S SPECIFICATIONS

The amplifier shall be a Muzak A-1000 or approved equal. It shall be of all silicon solid-state construction and capable of 100 watts rms, 150 watts music, 200 watts peak. Only amplifiers meeting all these wattage ratings will be accepted. The amplifier shall have distortion less than 1% at rated output and below. The frequency response shall be ± 1 dB 40-20,000 Hz with transformer output, and ± 1 dB 20-20,000 Hz with field strappable direct output. The amplifier noise shall be at least 85 dB below signal at the rated power output. The amplifier shall be designed to operate continuously on line voltages of 105 to 125 Volts, 50/60 Hz over a temperature range of 0° to 150° F (-18° C to 65° C). The amplifier shall be equipped with a current sensing overload protection circuit that will remove audio drive from the amplifier should an overload or short circuit develop. This protection circuit shall restore the amplifier in one millisecond when the short or overload is removed. The amplifier shall optionally accommodate an all solid-state electronic protection circuit that will shut down the amplifier power supply should an overload or short circuit occur. This optional protective circuit will rapidly restore the amplifier to operation after the short or overload is removed. Only amplifiers offering the capability of both types of protective circuits shall be acceptable.

The amplifier shall be capable of accepting either a balanced or unbalanced program input without the installation of additional equipment. A transformer shall be permanently installed in the amplifier to accommodate 10K ohm and 600 ohm balanced line inputs, both matching and bridging shall be available. Screw terminals shall be provided for balanced inputs.

The amplifier shall have outputs of 4, 8, and 16 ohms unbalanced, and 70.7 V and 25 V balanced. The balanced circuits shall be capable of being balanced to ground, or floating balanced. A bass cut switch shall be provided that shall attenuate the bass in the output. A 14 dB cut at 100 Hz will be required. Screw terminals shall be provided for all outputs. A direct coupled 4 ohm output shall be available by strapping the rear panel connector and the direct coupled output shall provide extended low end frequency response down to 20 Hz.

The amplifier shall be equipped with a program gain control, and an illuminated on/off switch.

The amplifier shall have an unswitched 115 Volt 3 wire grounded accessory outlet.

The amplifier shall be finished in Muzak Blue.

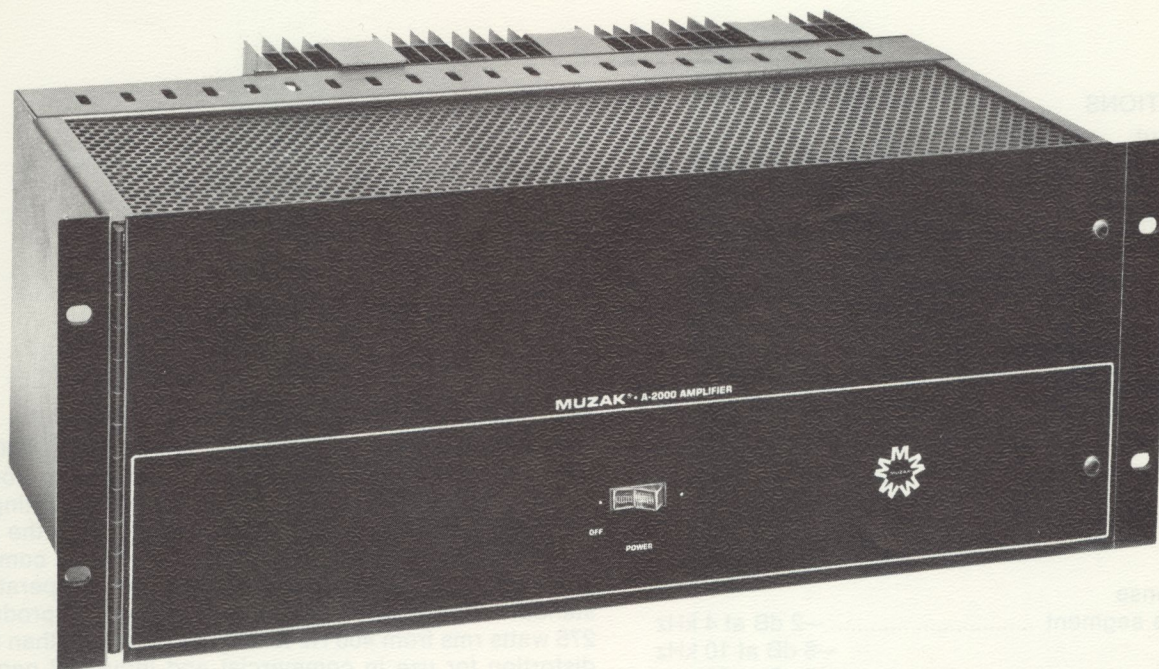
The amplifier shall be capable of being directly mounted in a 19" relay rack, and shall be ☐ supplied with, ☐ capable of being housed, in a complementary appearing desk top housing.

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MODEL A2000 200 WATT POWER AMPLIFIER



FEATURES

- 200 watt rms continuous rating
- High and low pass input filters
- 275 watt rms on 33% duty cycle
- Hinged service panels
- Failsafe protection
- Less than 1.5% distortion
- Ultra compact — 7" high
- All silicon transistors

Model A2000

GENERAL DESCRIPTION

The MuZak A-2000 is a professional quality power amplifier, rated for continuous 200 watt rms output. The A-2000 incorporates a number of truly unique features for ultra-reliable, high-power amplification.

Fail-safe system reliability is assured through incorporation of the M•Gard electronic fuse with 5-microsecond response time and automatic electronic reset. Solid state techniques eliminate use of relay closures. M•Gard completely compensates for transient voltages from lighting strikes, switching at full output power and power surges which often disable high-power amplifiers. Separate AC and DC fuses guard against power supply malfunction.

Protection of horn assemblies and elimination of high frequency oscillation is accomplished by the combination low-pass/high-pass filter. Either segment of the

filter may be switched in or out as required. With both networks switched in, amplifier response is tailored for the voice range.

Routine servicing is facilitated by swing-out service panels on both the front and rear of the amplifier.

The A-2000 is supplied with a line input transformer so that balanced bridging or terminating lines may be used on all installations. Computer grade electrolytic capacitors and oversized transformers provide a continuous 200 watts at less than 1.5% distortion from 50 to 10,000 Hertz, with all components operating well within temperature and electrical tolerances. For commercial paging applications where response is limited by the input filter and the duty cycle is less than 33%, the A-2000 will deliver 275 watts rms from 400 to 4000 Hertz at less than 5% total harmonic distortion.

MUZAK 200 WATT POWER AMPLIFIER - MODEL A2000

SPECIFICATIONS

Power Output

Continuous rms200 watts @ less than 1.5% THD
from 50 Hz to 10 kHz

Intermittent rms275 watts at less than 5% THD
(33% duty cycle)

Music*300 watts

Peak*400 watts

Frequency Response

(3 dB below RPO) ± 1.5 dB from 30-15,000 Hz

Gain82 dB

Hum and NoiseAt least 80 dB below RPO

Input Sensitivity250 MV

IM DistortionLess than 1.0% at 150 MW output
with 4:1 intermixed 60 Hz and
7 kHz input

Filter Response

High pass segment-2 dB at 4 kHz
-6 dB at 10 kHz
-15 dB at 20 kHz

Low pass segment-7 dB at 200 Hz
-14 dB at 100 Hz
-22 dB at 50 Hz

Inputs

Unbalanced10K ohms

Balanced600 or 10K ohms

RegulationBetter than 2 dB

Outputs70.7 and 25 volt CT balanced
and 8 ohms unbalanced

ControlsProgram gain, power on/off, low
filter in/out, high filter in/out

ProtectionAC line fuse, slo-blow dc fuse
and electronic fuse

Size19" (48.3 cm) wide
7" (17.8 cm) high
11" (27.9 cm) deep

Shipping Weight67 pounds

FinishMuzak Blue

Power Required105-135 Vac, 50/60 Hz

Power Input

No signal45 watts

200 watt output600 watts

Ordering Information

A-2000200 watts rms basic amplifier

* based on 200 watt rms output

ARCHITECT'S/ENGINEER'S SPECIFICATIONS

The power amplifier shall be a Muzak model A-2000 or equal all silicon type solid state amplifier. The power amplifier shall have a continuous power output rating of 200 watts rms at less than 1.5% distortion over the frequency range of 50 Hz to 10 kiloHertz with all components operating within their electrical and temperature standards. Reserve power shall be available to produce 275 watts rms from 400 Hz to 4000 Hertz at less than 5% distortion for use in commercial and industrial paging applications, where the duty cycle is less than 33%. The amplifier shall have a frequency response of 30 to 15,000 Hertz ± 1.5 dB and a power gain of 82 dB at 200 watts rms and input sensitivity of 250 millivolts. Hum and noise shall be at least 80 dB below rated output. Intermodulation distortion at 150 milliwatts with a 60 Hertz and 7 kiloHertz 4 to 1 mixed input shall be less than 1.0%. An input filter shall provide at least 6 dB of attenuation at 10,000 Hertz, 15 dB of attenuation at 20,000 Hertz, 14 dB of attenuation at 100 Hertz and 22 dB of attenuation at 50 Hertz. Input shall be balanced 600 or 10,000 ohms with the line input transformer supplied. Regulation shall be better than 2 dB. Controls for gain, power on-off, low filter in-out, high filter in-out and a power indicator light shall be provided. Power requirements shall be 105 to 135 volts ag 50/60 Hertz single phase and the amplifier shall draw no more than 45 watts with no signal input and 600 watts at 200 watts rms output. Outputs shall be 70.7 and 25 volts balanced center tapped, and 8 ohm unbalanced. Protection shall be ac line fuse, slow blow dc fuse and ultra-rapid electronic fuse. The electronic fuse circuit shall be automatic, shall operate with five microseconds and shall be self-restoring. Shipping weight shall be 67 pounds and the amplifier shall be no larger than 19.0" wide, 7.0" high and 11.0" deep. Finish shall be Muzak Blue. Access to all components shall be available through front and rear swingout service panels.

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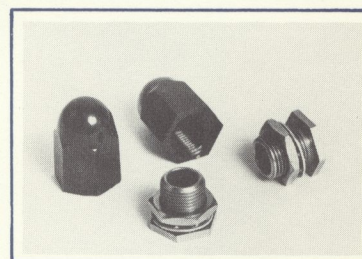
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amplifier accessories



SHAFT BUSHING & BLANKING CAP NUT



These are used when it is desired to prevent changing or tampering with fixed gain settings on the MUZAK or Microphone volume controls.

The shaft bushing is used to replace the nylon bushing normally supplied with the microphone pre-amplifier (PTR-2, PT-2) etc. The bushing is inserted from the rear of the panel and fastened with the nut. The threaded portion of the bushing now extends out the front panel and allows the Cap Nut to be screwed on the bushing; covering the volume control shaft.

The Cap Nuts and bushings are packed separately:
10 pieces per package.

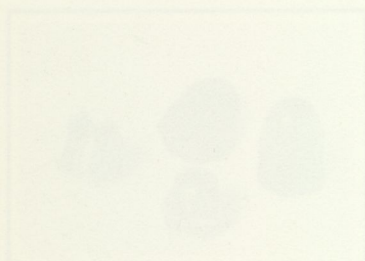
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SECTION V FILE B-3



MUZAK - SPECIALISTS IN SOUND

amplifier accessories



BLANKING CAP NUT SHAFT BUSHING &

These are used when it is desired to prevent changing of amplifier with fixed gain settings on the MUZAK or microphone volume controls.

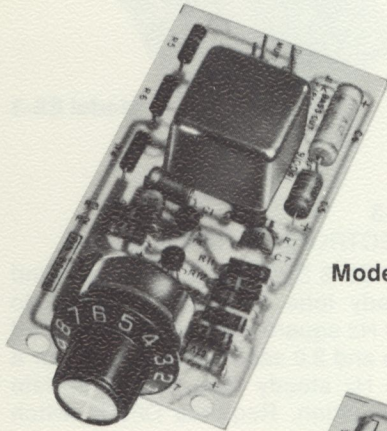
The shaft bushing is used to replace the nylon bushing normally supplied with the microphone pre-amplifier (PTR-2, PT-2) etc. The bushing is inserted from the rear of the panel and fastened with the nut. The threaded portion of the bushing now extends out the front panel and allows the Cap Nut to be screwed on the bushing, covering the volume control shaft. The Cap Nuts and bushings are packed separately. 10 pieces per package.

CONTACT YOUR LOCAL MUZAK® REPRESENTATIVE

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30 AVENUE NEW YORK, N.Y. 10013
Section 5 of the 1977

MUZAK MODULES

The following modules are optional plug-in accessories for the Muzak A-125, A-175 amplifiers and STR-400 receiver.



Model PT-3

PT-3 LOW IMPEDANCE MICROPHONE PREAMPLIFIER

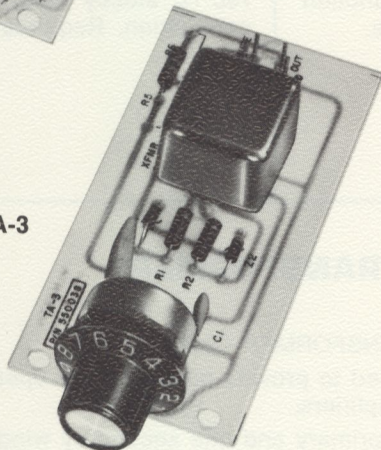
The Muzak PT-3 is a low impedance microphone preamplifier plug-in module designed for use with the Muzak A-125, A-175 amplifier and STR-400 receiver.

Where muting of the Muzak channel during page is required, the amplifiers must be equipped with the electronic muting module R-3. **Muting module R-3 is not required on STR-400.**

SPECIFICATIONS

Input Impedance.....	150 ohm balanced.
Response.....	±1.0 dB, 50-15,000 Hz.
Distortion.....	0.5% THD.
Input Level.....	−60 dBm, with −30 dBm overload.
Hum and Noise.....	−62 dB.

Model TA-3



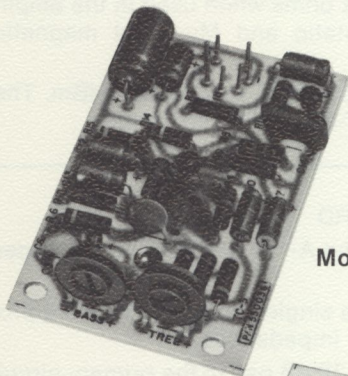
TA-3 TELEPHONE ANNOUNCE MODULE

The TA-3 is designed for use where the paging source is from a telephone switchboard or dial paging system.

SPECIFICATIONS

Input.....	Balanced bridging, 2500 ohms.
Response.....	10 dB attenuation at 30 and 12 kHz.
Input Level.....	−10 dBm (250 millivolts).
Hum and Noise.....	−67 dB.

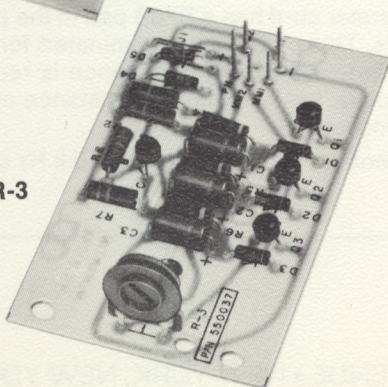
Model TC-3



TC-3 TONE CONTROL MODULE

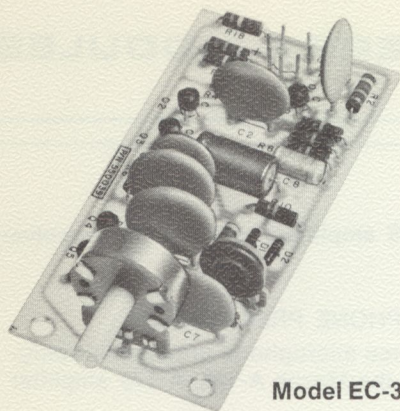
The TC-3 tone control plug-in module is designed for use where tone compensation in the Muzak channel is required. The TC-3 provides up to ±15 dB of active boost and cut at 50 Hz and 15 kHz. The controls are internal and can be adjusted through holes in the rear of the amplifier and receiver.

Model R-3



R-3 ELECTRONIC MUTE MODULE

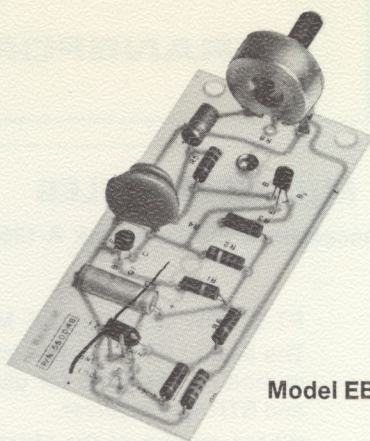
The R-3 mute plug-in module is designed for use when it is desired to mute or reduce the level of the Muzak channel during page. The R-3 will provide up to 50 dB of muting control of three (3) channels (two normally closed and one normally open). The R-3 is used when required, in conjunction with the PT-3 and TA-3 modules. **The R-3 is not required in the STR-400 receiver.**



Model EC-3

**EC-3
ELECTRONIC CHIME MODULE**

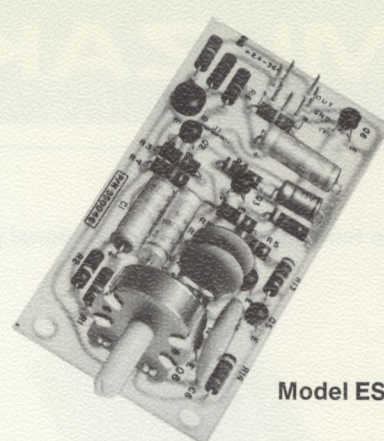
The EC-3 plug-in module is designed for use with chime coded paging and signaling systems. The EC-3 produces a 700 Hz damped sine wave of (1) one second duration for chime paging applications. Optionally, by connecting the switch to an alternate terminal of the amplifier, a repeat chime effect is obtained for the duration of the switch closure.



Model EB-3

**EB-3
ELECTRONIC BUZZER MODULE**

The EB-3 Buzzer module produces a 2.0 millisecond pulse, repeated at 300 pulses per second rate. It is controlled by a single pole switch closure, and will continue to function for duration of switch closure.

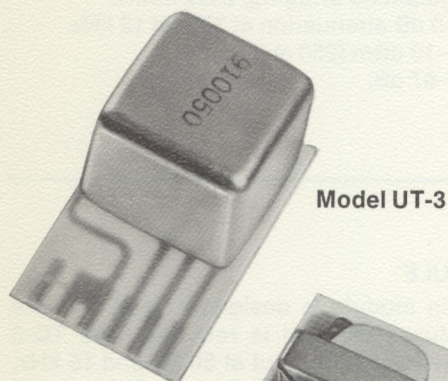


Model ES-3

**ES-3
ELECTRONIC SIREN MODULE**

The ES-3 Siren produces a wail and steady tone siren effect of 500 to 700 Hz square wave with 7.0 second rise and 2.0 second decay time; or a 700 Hz steady tone by appropriate connection. Requires DPDT switch closure.

MUZAK AMPLIFIER PLUG-IN TRANSFORMERS



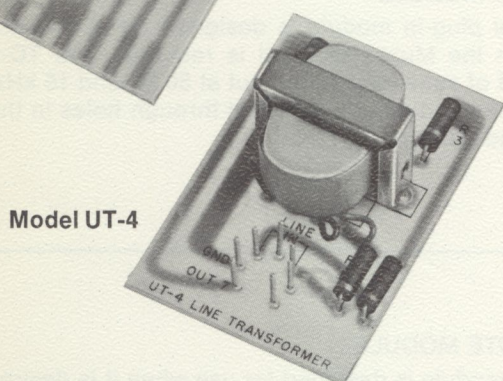
Model UT-3

UT-3 PLUG-IN TRANSFORMER CARD

The UT-3 is designed to provide balanced line operation with the A-125 and A-175 amplifiers.

The UT-3 has one primary and one secondary winding with a 1:1 ratio and bridging impedance of 15 k ohms when used in the amplifiers. The UT-3 has both electrostatic and Mu-metal magnetic shielding.

The frequency response is ± 1 dB, 50 Hz to 15 k Hz at 0 dBm. The UT-3 is plug compatible with the UT-2 plug-in transformer.



Model UT-4

UT-4 PLUG-IN TRANSFORMER CARD

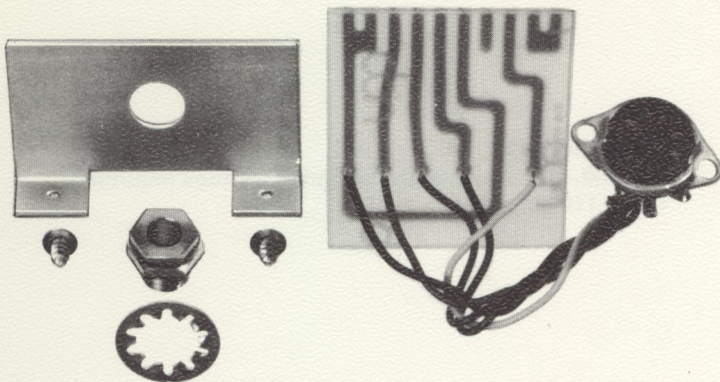
The UT-4 is designed for use with the A-110 amplifier for balanced line operation.

The UT-4 has a tapped primary and a single secondary winding providing 600 ohm as well as bridging impedances.

Normally the transformer card has a 10 dB pad in the primary circuit for 0 dBm line levels. This pad may be eliminated for operation on low level lines or where a bridging impedance is required on balanced lines. In this case, the terminating resistance of 680 ohms on the card must be removed.

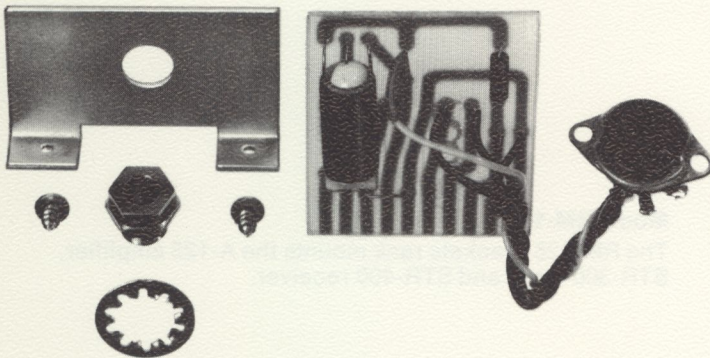
The frequency response is ± 1.0 dB, 50 Hz to 15 k Hz at 0 dBm level.

MODULE ADAPTORS



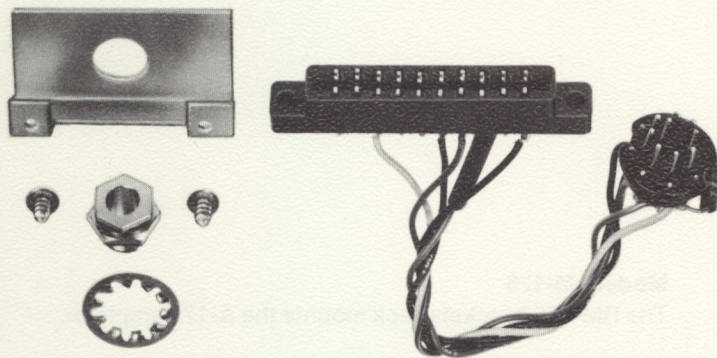
Model MJ-1

The MJ-1 Adaptor is designed to allow the use of the new PT-3, TA-3, EB-3, EC-3 and ES-3 in the A-10, A-20 and A-75 amplifiers.



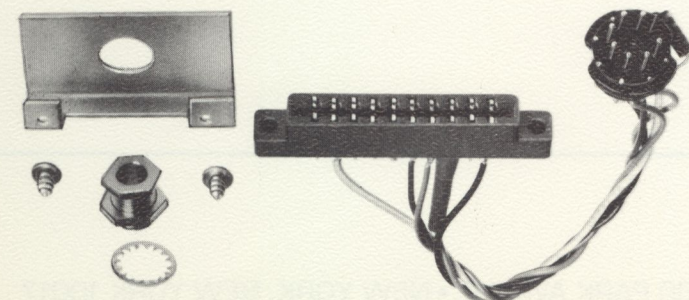
Model MJR-1

The MJR-1 Adaptor allows the use of the PT-3 and TA-3 for relay muting of the A-10, A-20 and A-75 amplifier.



Model JM-1

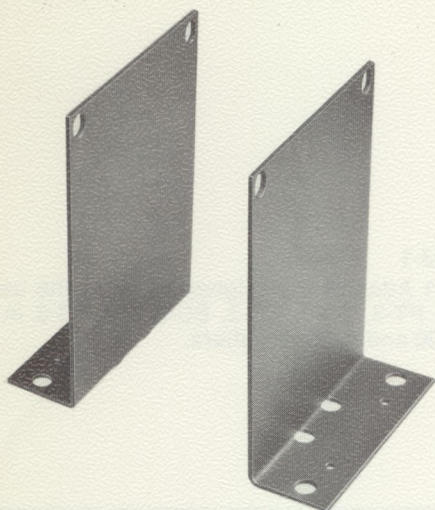
The JM-1 Adaptor permits the use of the PT-2, TA-2, EB-2 and EC-2 in the A-125, A-175 and STR-400 receiver.



Model JMR-1

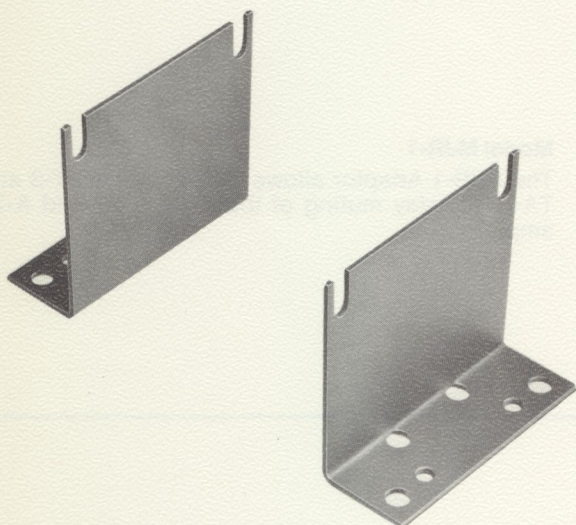
The JMR-1 Adaptor permits the use of the PTR-2 and TAR-2 in the A-125, A-175 and STR-400 receiver. If muting is required during page, an R-3 mute module must be used along with the PTR-2 and TAR-2 in the A-125 and A-175. The R-3 is not required in the STR-400.

RACK MOUNTING BRACKETS



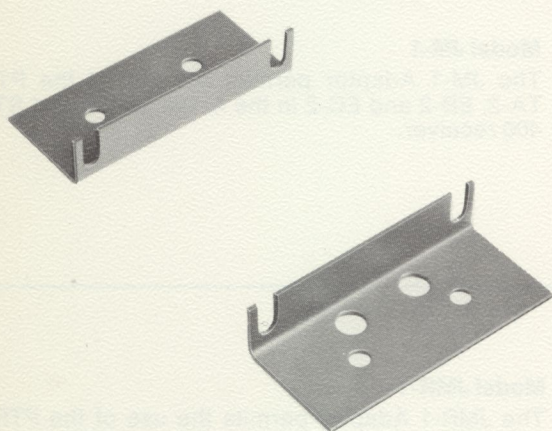
Model RM-110

The RM-110 brackets are designed for rack mounting the A-110 amplifier.



Model RM-125

The RM-125 brackets rack mounts the A-125 amplifier, STR-300 tuner and STR-400 receiver.



Model RM-175

The RM-175 brackets rack mounts the A-175 amplifier.

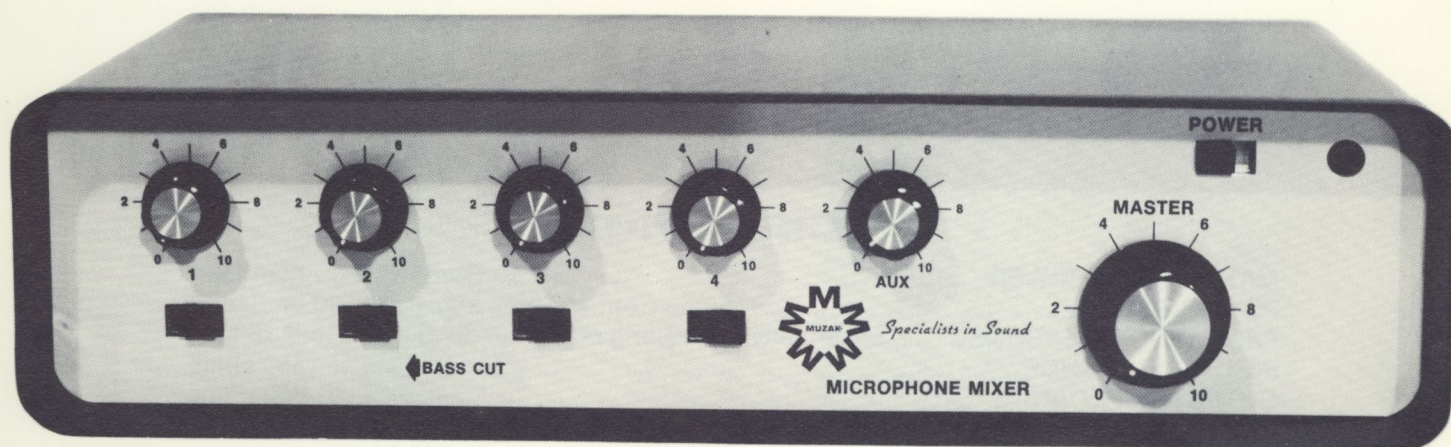
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M-410 microphone mixer



DESCRIPTION

The MUZAK M-410 microphone mixer is a five channel solid state device of compact design for mixing four low impedance microphones and one high level auxiliary input. Each of the microphone channels is equipped with a bass "roll-off" switch control for improved voice intelligibility. The microphones inputs are Cannon five pin receptacles which in addition to providing the microphone connections also provide amplifier relay circuit control. The unit has a self contained power supply.

The M-140 has a low impedance output of 600 ohms and is capable of driving a number of power amplifiers.

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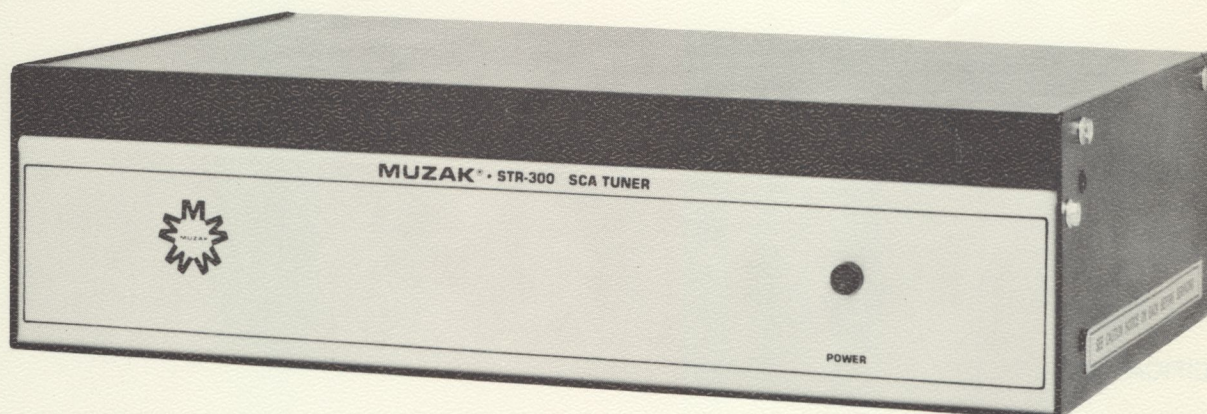
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SECTION V FILE E-1

SPECIFICATIONS

MAX. OUTPUT POWER +10 Dbm into 600 ohm load
POWER GAIN 65 db from 150 ohm source to 600 ohm load
FREQUENCY RESPONSE Essentially flat, rolling off to —3 db at 25 Hz and 15 KHz
INPUT IMPEDANCE 150 ohms
OUTPUT IMPEDANCE 600 ohms
HUM & NOISE LEVEL 65 db below rated output
DISTORTION 1% max. harmonic at +10 Dbm output level
BASS CUT SWITCH —10 db at 100 Hz
REGULATION 1.5 db 50 Hz to 15 KHz

ARCHITECTS & ENGINEERS SPECIFICATIONS

The microphone mixer shall be a MUZAK Model M-410 solid state unit having four low impedance transformer inputs with individual low frequency roll-off switches and having one high impedance auxiliary input. The mixer shall have six volume controls; four for microphones, one for auxiliary input and one master gain control. The mixer shall be equipped with Cannon five pin microphone receptacles. The mixer shall be equipped with pin jacks for the auxiliary input and for the mixer output. The unit shall have a self-contained power supply and shall be listed by underwriters laboratory. Its performance shall be as listed under specifications.



Model STR-300

FEATURES

- High Sensitivity.
- 42 dB alternate channel rejection.
- Main/SCA channel squelch.
- Phase lock SCA detection.
- Dual gate FET RF amplifier.
- Linear AGC.
- High reliability.

GENERAL DESCRIPTION

The STR-300 SCA Multiplex Tuner is a fixed tuned crystal controlled, single conversion superheterodyne tuner, employing phase locked detection of the SCA subcarrier.

The use of dual-gate, diode protected FET RF amplifier, plus computer designed IF filter, provides high sensitivity and selectivity. The alternate channel rejection is 42 dB with the standard filter.

The STR-300 features high Q input, three stage IF amplification/limiting with level detectors in each stage. For optimum linearity and overload characteristics, AGC is applied to both the RF amplifier and mixer stages.

Phase lock circuitry in the SCA channel assures stable operation over extreme temperature ranges. The Phase lock detector which involves no tuned circuits, gives a highly linear output over the entire subcarrier swing, resulting in low distortion and noise.

Muting of the SCA channel is reliable, noise free and stable. It operates from dual sensing circuitry which monitors the main and subchannel signal levels. There is positive subchannel muting (squelch) in the absence of main carrier as well as subcarrier.

Main audio output (0.4 V RMS, 100K ohms) and sub-channel audio (1.0 V RMS, 600 ohms) both unbalanced terminate on the rear chassis phono jacks.

The power supply has adequate capacity to supply power for external RF amplifiers and can be implemented when needed by a simple relocation of the antenna input lead to a solderless pin on the circuit board.

The TR-300 is a highly reliable tuner, utilizing a minimum of components on a single glass-epoxy base printed circuit board which is completely interchangeable with the board used in the Muzak STR-400 SCA receiver.

MUZAK STR-300 SCA MULTIPLEX TUNER

SPECIFICATIONS

SUBCHANNEL

Range.....	41 or 67 kHz; ± 6 kHz deviation standard. (Other SCA frequencies available on special order).
Sensitivity.....	5.0 microvolts/30 dB quieting (10% injection level). 3.0 microvolts/30 dB quieting (20% injection level).
Crosstalk.....	55 dB minimum; main to SCA, stereo to SCA, or SCA to SCA @ 400 Hz.
Deemphasis.....	150 microseconds standard (other values available on special order).
Frequency response.....	± 3.0 dB, 30 to 6000 Hz (150 usec deemphasis).
Distortion.....	0.75% or less, ± 6 kHz deviation, 400 Hz.
Hum and Noise.....	65 dB or greater below full output.
Audio Output.....	1.0 volts RMS, 600 ohms unbalanced.

MAIN CHANNEL

Antenna input.....	50/72 ohms unbalanced.
Range.....	88-108 MHz.
Sensitivity.....	1.2 microvolts for 30 dB quieting. Complete limiting at 3 microvolts.
Selectivity.....	42 dB rejection of alternate channel (standard). 55 dB rejection of alternate channel (optional).
Capture ratio.....	Better than 2.0 dB.
Distortion.....	0.3 percent or less, ± 75 kHz deviation @ 400 Hz.
S/N Ratio.....	65 dB or greater below ± 75 kHz deviation @ 400 Hz.
Audio Output.....	0.4 volts RMS, 100K-ohms unbalanced.

GENERAL

Terminations.....	(Rear chassis) Antenna: Female F-type coaxial; Main channel and subchannel audio: phono jack; SCA balanced audio: screw terminals.
Controls.....	(Rear chassis) Subchannel mute. (Internal) RF level mute; SCA audio level; SCA frequency.
Power required.....	105-130 Vac, 50/60 Hz, 5 watts.
Dimensions.....	13"W x 8½"D x 3½"H
Finish.....	Muzak Blue and off-white enamel.
Shipping Weight.....	7 pounds

STANDARD ACCESSORIES

RM-125.....	Rack Mount Adaptor Kit.
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UL and CSA listed.

MUZAK

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Model STR-400

FEATURES

- High Sensitivity.
- 42 dB alternate channel rejection.
- Main/SCA channel squelch.
- Dual gate FET RF amplifier.
- Linear AGC.
- Phase lock SCA detector.
- Modular design to accept optional plug-in 6 or 12.5 Watt amplifiers and microphone pre-amplifiers.

GENERAL DESCRIPTION

The Muzak STR-400 SCA Multiplex receiver is a fixed tuned, crystal controlled, single conversion superheterodyne receiver.

The use of dual-gate, diode protected FET RF amplifier, plus computer designed IF filter, provides high sensitivity and selectivity. Alternate channel rejection is 42 dB with standard filter.

The STR-400 features high Q input, three stage IF amplification/limiting with level detectors in each stage. For optimum linearity and input and overload characteristics, AGC is applied to both the RF amplifier and mixer stages.

Phase lock circuitry in the SCA channel assures stable operation of the receiver over a wide temperature range. The phase lock detector which involves no tuned circuits, gives a highly linear output over the entire sub-carrier swing resulting in low distortion and noise.

Muting of the SCA channel is reliable, noise free and stable. It operates from dual sensing circuitry which monitors the main and subchannel signal levels. There is positive subchannel muting in the absence of main car-

rier as well as subcarrier.

The main channel audio output (0.4 V RMS, 100 k ohms) and subchannel output (1.0 V RMS, 600 ohms) are both unbalanced and terminate on phono jacks on rear of chassis. The STR-400 will accept plug-in amplifiers model A-6, or A-12, rated 6 and 12.5 watts respectively into 8 ohms unbalanced, or 25/70 volt balanced loads. When the A-6 and A-12 modules are used, the TC-3 tone control module and microphone preamplifier, module PT-3 may be used.

Power for an external RF amplifier can be supplied by the STR-400 by simply relocating the antenna input lead to a solderless pin on the circuit board.

The STR-400 is a highly reliable receiver, utilizing a minimum of components on a single glass-epoxy printed circuit board for the RF and SCA circuitry which is interchangeable with the board used in the STR-300 tuner. A second board accommodates all optional plug-in accessories.

The STR-400 may be rack mounted by using the RM-125 rack adaptor kit.

MUZAK STR-400 SCA MULTIPLEX RECEIVER

SPECIFICATIONS

SUBCHANNEL

Range.....	41 or 67 KHz; ± 6 kHz deviation standard. (Other SCA frequencies available on special order).
Sensitivity.....	5.0 microvolts/30 dB quieting (10% injection level). 3.0 microvolts/30 dB quieting (20% injection level).
Crosstalk.....	55 dB minimum; main to SCA, stereo to SCA, or SCA to SCA.
Deemphasis.....	150 microseconds standard (other values available on special order).
Frequency response.....	± 3 dB, 30 to 6000 Hz (150 usec deemphasis).
Distortion.....	0.75% or less, ± 6 kHz deviation, 400 Hz.
Hum & Noise.....	65 dB or greater below full output.
Audio output.....	1.0 volts rms, 600 ohms unbalanced.

MAIN CHANNEL

Antenna input.....	50/72 ohms unbalanced.
Range.....	88-108 MHz.
Sensitivity.....	1.2 microvolts for 30 dB quieting. Complete limiting at 3 microvolts.
Selectivity.....	42 dB rejection of alternate channel (standard). 55 dB rejection of alternate channel (optional).
Capture ratio.....	Better than 2.0 dB.
Distortion.....	0.3 percent or less, ± 75 KHz deviation @ 400 Hz.
S/N ratio.....	65 dB or greater below ± 75 kHz deviation @ 400 Hz.
Audio output.....	0.4 volts rms, 100 k ohms unbalanced.

GENERAL

Terminations.....	(Rear Chassis) Antenna: Female F-type coaxial; Main channel and subchannel audio: phono jack; SCA balanced audio: screw terminals.
Controls.....	Microphone/ mute: Screw terminals; A6/A12, outputs: screw terminals. (Rear Chassis) Subchannel mute (Internal) RF level mute; SCA audio level; SCA frequency.
Power required.....	105-130 Vac, 50/60 Hz, 5 Watts (35 watts with A-12).
Dimensions.....	13" W x 11" D x 3½" H.
Finish.....	Muzak Blue and off-white enamel.
Shipping Weight.....	9 pounds.

STANDARD ACCESSORIES

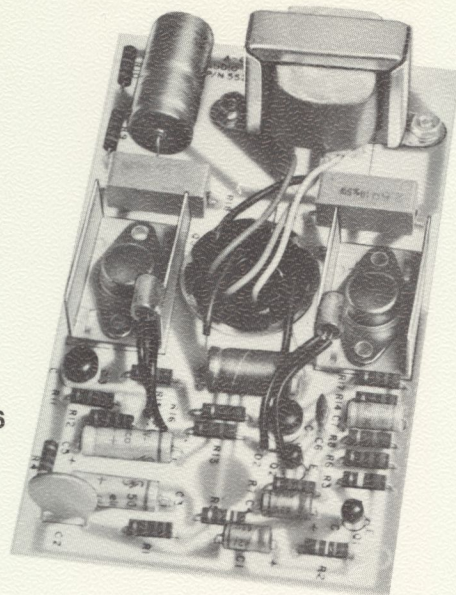
PT-3.....	Microphone preamplifier module.
TC-3.....	Tone control module.
A-6.....	6 watt amplifier module.
A-12.....	12.5 watt amplifier module.
RM-125.....	Rack Mount Adaptor Kit.

UL and CSA listed.

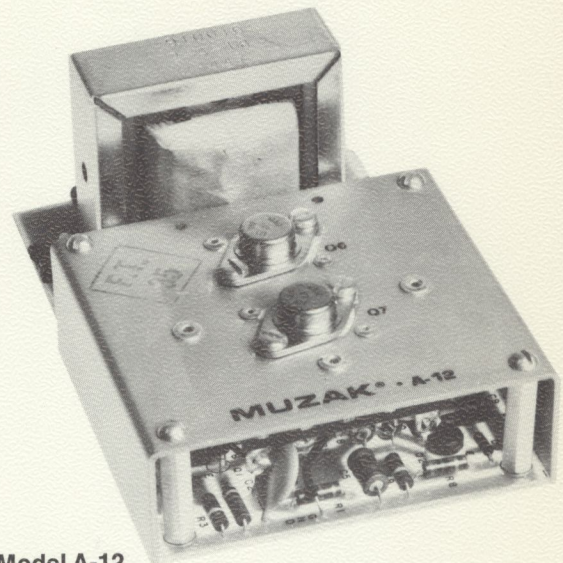
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Model A-6



Model A-12



PLUG-IN MODULES

- A-6, 6 Watt Amplifier Module
- A-12, 12.5 Watt Amplifier Module

SPECIFICATIONS

OUTPUTS.....	8 ohms, Unbalanced, 25/70 V balanced.
POWER	
A-6.....	6 watts RMS @ 8 ohms; 5 watts RMS @ 25/70 V.
A-12.....	12.5 watts RMS @ 8 ohms; 10 watts RMS @ 25/70 V.
FREQUENCY RESPONSE.....	±1 dB, 50-20,000 Hz.
THD	
A-6.....	Less than 2%, 100-10,000 Hz @ 10 W program power.
A-12.....	Less than 2%, 60-12,000 Hz @ 20 W program power.
HUM & NOISE.....	-70 dB with normal receiver gain setting.
SHIPPING WEIGHT.....	1.0 lb.

GENERAL DESCRIPTION

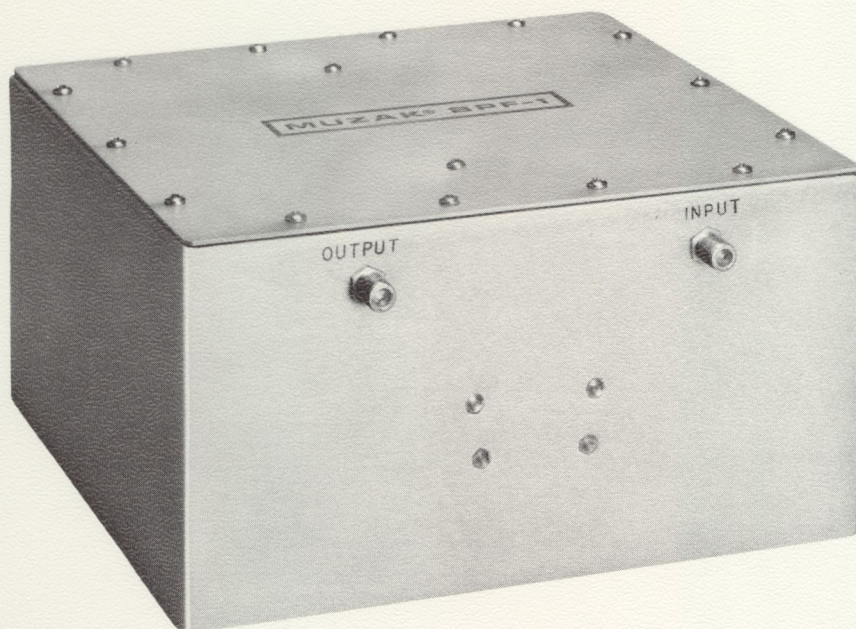
The application of the STR-400 to varying field requirements is readily met by its extreme flexibility due to its modular design.

The A-6 and A-12 plug-in amplifiers simplifies those installations where a low order of audio power is re-

quired. Either of these two units in conjunction with a tone control module (TC-3) and a microphone pre-amplifier module (PT-3) rounds out the unit for a complete program source, power amplifier and paging system.

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MODEL BPF-1 TUNABLE BAND PASS FILTER



GENERAL DESCRIPTION

The Muzak band pass filter model BPF-1 was designed for use in the FM band, 88 to 108 MHz to increase the receiving system selectivity to reduce or eliminate interference caused by other signals 1 MHz or more removed from the desired signal.

The BPF-1 is connected into the antenna line to the tuner or receiver. It is passive and requires no external D.C. power. Its nominal 3dB bandwidth is 500 KHz.

The unit is normally located near the receiver or tuner, since it is not designed for outdoor use.

The BPF-1 consists of two critically coupled resonant circuits having high Q coils and series tuning capacitors. The enclosure is made of aluminum and gold iridited.

When ordering the BPF-1 specify the desired frequency of operation so that it may be tuned at the factory. Tuning instructions are supplied with each unit.

SPECIFICATIONS

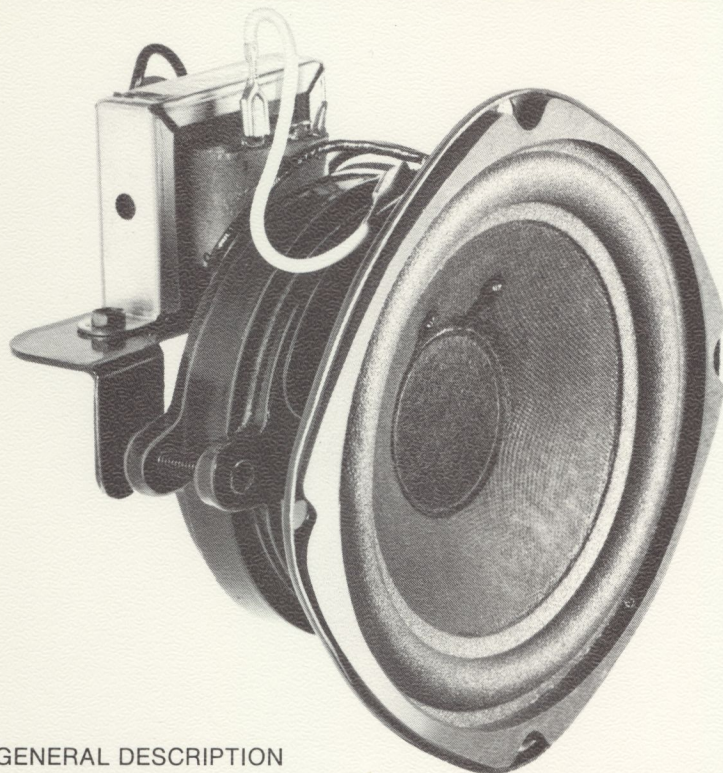
TYPE:	Bandpass, Butterworth, two pole
FREQUENCY RANGE: ..	88-108 MHz (Tunable)
BANDWITH (NOM.):	3dB @ 500 KHz 10dB @ 1 MHz 20dB @ 1.8 MHz 30dB @ 3.3 MHz 3dB (Typ.)
INSERTION LOSS:	
INPUT AND OUTPUT IMPEDANCE:	75 Ohms
INPUT AND OUTPUT CONNECTORS:	F-61
TUNING MECHANISM: ..	Two External Adjustments
ENCLOSURE MATERIAL: ..	Aluminum (Gold Iridited)
DIMENSIONS:	9" x 8" x 5"
WEIGHT:	4 lbs.

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MUZAK®

C4M10/U704 LOUD SPEAKER



FEATURES:

- Extended frequency range
- High sensitivity
- High compliance
- Compact assembly
- Rugged construction
- 70 volt 4 watt transformer
- 10 ounce ceramic magnet
- Baked on enamel finish

GENERAL DESCRIPTION

The Muzak C4M10/U704 is a high quality speaker and transformer combination designed for wide range music and voice reproduction in application where restricted space and enclosures are specified.

The C4M10/U704 has a 4 inch diameter cone with a high compliance supporting system to provide extended low frequency response in small enclosures. It has a 10 ounce ceramic magnet with a flux density of 11,000 Gauss for high efficiency.

The C4M10/U704 is sturdily constructed of heavy gauge steel with baked on enamel finish. Its associated 70 volt transformer U704 is attached to a rugged bracket on the back of the magnet. The diameter is $5\frac{1}{16}$ " and its depth is $3\frac{3}{8}$ " overall.

The power handling capability of the speaker is 15 watts of program material. Its frequency response is 20 Hz to 12,000 Hz. It will produce a sound pressure level of 92 dB on axis at $7\frac{1}{2}$ feet with one watt input at 1,000 Hz.

Power taps available with transformer are: 4, 2, 1, $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{8}$ watts on 70 volt lines.

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The speaker shall be the Muzak C4M10/U704 speaker and transformer combination or equivalent. Its overall dimensions shall be $5\frac{1}{16}$ " diameter and $3\frac{3}{8}$ " in height including its transformer. The speaker shall have a 4" cone and a 10 ounce ceramic magnet with a flux density of 11,000 Gauss. Its frequency response at 8 ohm shall be 20 Hz to 12,000 Hz. The resonant frequency shall be

75 Hz. The sound pressure level shall be 92 dB on axis at $7\frac{1}{2}$ feet with one watt input at 1 KHz.

The speaker shall be capable of handling 15 watts of program material. Its associated transformer shall have a power capacity of 4 watts RMS with taps for 2, 1, $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{8}$ watts at 70.7 volts. Its frequency response shall be 50 Hz to 12,000 Hz.

SPECIFICATIONS:

POWER HANDLING

CAPACITY: 15 watts program material

FREQUENCY

RESPONSE: 20 to 12,000 Hz

SOUND

PRESSURE LEVEL: dB at 7.5 ft. @ 1KHz & 1 watt

RESONANT

FREQUENCY: 75 Hz

MAGNET: 10 ounce ceramic

FLUX DENSITY: 11,000 Gauss

Voice Coil: 8 ohms

CONE: Two piece molded, Passive annular termination

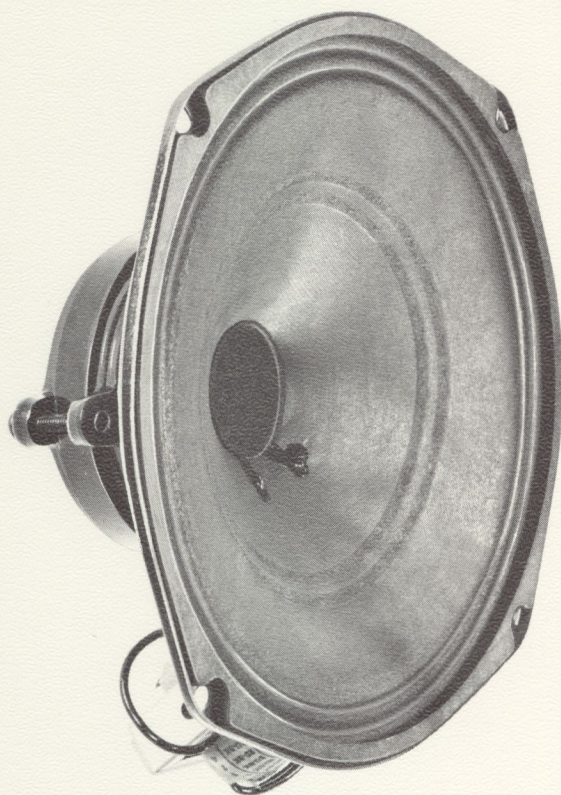
MOUNTING: Four equally spaced holes on $4\frac{11}{16}$ dia.

SIZE: $5\frac{1}{16}$ " dia. and $3\frac{3}{8}$ " deep w/transformer

WEIGHT: 2 lbs., $2\frac{1}{2}$ lbs. w/transformer

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Features:

- Flame Retardant Cone.
- 10 Ounce Ceramic Magnet for high efficiency.
- Heavy Gauge rugged construction.
- Baked Enamel Finish.
- Equipped with 70.7 volt 4-watt transformer.

GENERAL DESCRIPTION

The Muzak model FR-810 is an 8 inch loudspeaker with a 10.0 oz. ceramic magnet. The cone is impregnated with phosphated flame retardant chemical. Its special design is such that when subjected to intense heat and/or flame, it will not support combustion.

Its excellent frequency response and power handling capability makes the FR-810 suitable for all high quality voice and music applications.

The FR-810 is equipped with the Muzak U704, 70 volt speaker line matching transformer, having power taps from 1/8 to 4 watts.

ARCHITECTS/ENGINEERS SPECIFICATIONS

The loudspeaker shall be Muzak Model FR-810, 8 inch flame retardant cone speaker. The magnet shall be a 10 ounce ceramic type. The cone shall be treated with phosphated flame retardant chemical. Sensitivity shall be such that a sound pressure level of 92.5db is produced, on axis, at a distance of 7½ feet, with an input of 1 watt at 1000 Hz. The program power handling ability shall be 15 watts. The voice coil shall have a nominal impedance of 8 OHMS. The frequency response shall be 50 Hz to 12,000 Hz. Overall diameter shall be 8-3/32" and the depth shall be 3-3/32". Mounting holes on the

rim shall be E.I.A. standard. Finish shall be baked on enamel. Its associated transformer shall be the Muzak model U 704, 4 watts rating at 70 volts.

SPECIFICATIONS

FREQUENCY RESPONSE . . 50-12000 Hz

POWER HANDLING

CAPACITY 15 watts, program material
@ 8 OHMS

FLUX DENSITY 11,000 Gauss

AXIAL SOUND

PRESSURE LEVEL 92.5 dB @ 1 watt, 7½ ft.,
1,000 Hz

IMPEDENCE OF VOICE

COIL POWER 8 ohms

TAPS W/U704 1/8, 1/4, 1/2, 1, 2 & 4 watts

MAGNET 10.0 oz. ceramic

SIZE 8-3/32" dia., 3-3/32" deep

MOUNTING, E.I.A.

STANDARD Four equally spaced holes
on 7-5/8" dia.

WEIGHT 2 lbs., 14 oz. W/U704
transformer

FINISH Backed on enamel paint

PACKING Individually packed, 10 to a
standard carton.

MUZAK® SPECIALISTS IN SOUND



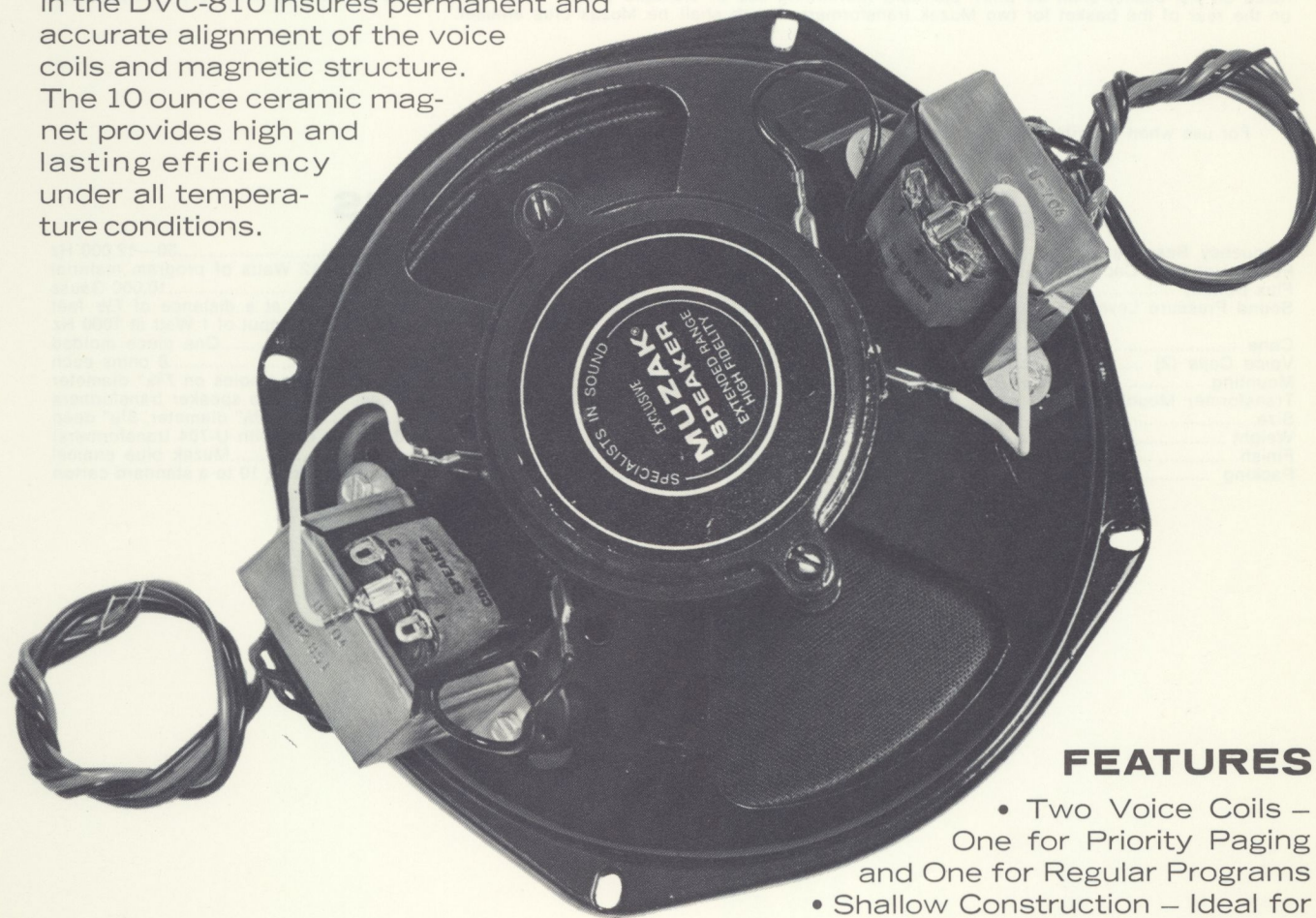
dvc-810 dual voice coil speaker

DESCRIPTION

The Muzak Model DVC-810 is an 8 inch dual voice coil loudspeaker with a frequency response of 30 to 12000 Hz and a power handling capacity of 12 watts for each voice coil.

The two voice coil windings provide an ideal method for sending emergency calls or other priority messages over the regular program regardless of the setting of individual loudspeaker volume controls.

The heavy gauge metal construction used in the DVC-810 insures permanent and accurate alignment of the voice coils and magnetic structure. The 10 ounce ceramic magnet provides high and lasting efficiency under all temperature conditions.



FEATURES

- Two Voice Coils – One for Priority Paging and One for Regular Programs
- Shallow Construction – Ideal for In-Wall Mounting
- Comes Equipped with Two Muzak U-704 Transformers
- High Efficiency
- Low Distortion
- Extended Range
- Muzak Blue Enamel Finish
- Rugged Construction
- Moisture Resistant Parts.

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SECTION V File C-1

ARCHITECTS & ENGINEER'S SPECIFICATIONS

The loudspeaker shall be Muzak model DVC-810. It shall be the permanent magnet, cone type. The magnet shall be 10.0 ounces of Ceramic. Sensitivity shall be such that a sound pressure of 85 db (on axis) at a distance of 7½ feet is produced (measured above .0002 dynes per square centimeter) with an input of one watt. The cone shall be one piece molded. The power handling capacity of each voice coil shall be 12 watts of program material. Each voice coil shall have a nominal impedance of 8 ohms. Overall diameter shall be 8½" and maximum depth shall be 3½". Weight shall be approximately 3 pounds, 10 ounces (with U704 transformers). Mounting holes on the basket shall be E.I.A. standard (permitting use of standard plaster rings, fixtures, etc.) Mounting holes shall be provided on the rear of the basket for two Muzak transformers. Finish shall be Muzak blue enamel.

APPLICATION

For use when priority paging is needed and music volume controls must be by-passed.

TECHNICAL SPECIFICATIONS

Frequency Response	30—12,000 Hz
Power Handling Capacity	12 Watts of program material
Flux Density	10,000 Gauss
Sound Pressure Level	The axial sound pressure level at a distance of 7½ feet from the speaker is 85 db at an input of 1 Watt at 1000 Hz
Cone	One piece molded
Voice Coils (2)	8 ohms each
Mounting	Four equally spaced holes on 7½" diameter
Transformer Mounting	Frame will accommodate two speaker transformers
Size	8½" diameter, 3½" deep
Weight	3 lbs. 10 oz. (with U-704 transformers)
Finish	Muzak blue enamel
Packing	Individually packed, 10 to a standard carton

CONTACT YOUR LOCAL MUZAK® REPRESENTATIVE

FEATURES

- Highly Moisture and Rust Resistant
- 10 ounce Ceramic Magnet for High Efficiency
- Cone Mylar Coated on both sides to form complete Moisture Barrier
- All Cements used are Moisture and Fungus Proof
- Baked Enamel Finish over Cadmium Plating
- Low Distortion
- Excellent Reproduction
- Efficient
- Heavy Gauge and Rugged Construction

GENERAL DESCRIPTION

The MUZAK Model MOD-810 is an 8 inch mylar coated cone type loudspeaker with a 10 oz. ceramic magnet. It is designed to operate in areas having high moisture content or contaminated atmosphere by the employment of a mylar coated cone and cadmium plating of all metal parts before the baked enamel finish.

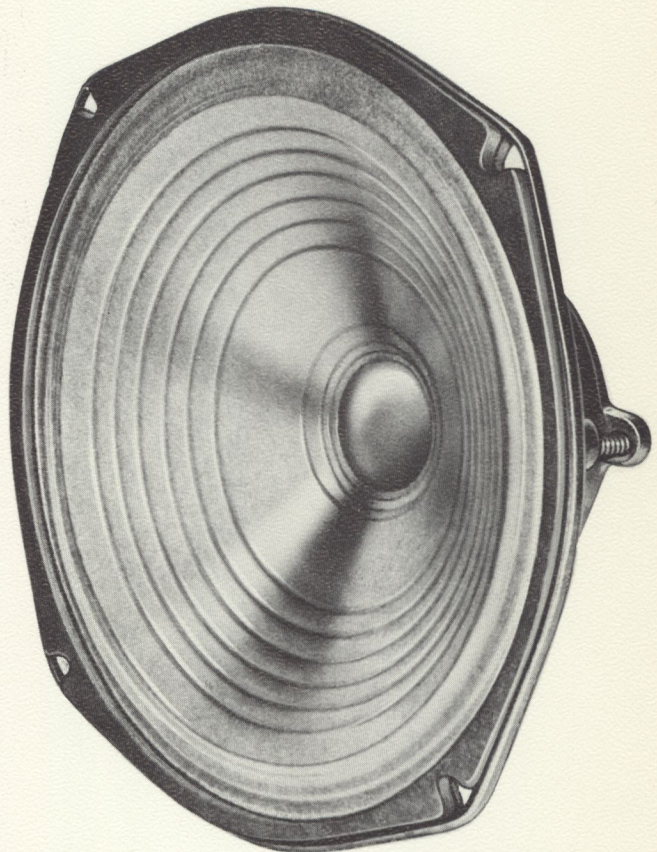
The 10 oz. ceramic magnet provides high efficiency and excellent frequency response. Its heavy gauge metal construction insures permanent and accurate alignment of the voice coil and magnetic structure. The MOD-810 is supplied with MUZAK U704 matching transformer.

ARCHITECT'S & ENGINEER'S SPECIFICATIONS

The loudspeaker shall be Muzak model MOD-810. It shall be the permanent magnet cone type. The magnet shall be 10.0 ounces of Ceramic. Sensitivity shall be such that a sound pressure of 87 db (on axis) at a distance of 7½ feet is produced (measured above .0002 dynes per square centimeter with an input of one watt. The cone shall be mylar coated on both sides. All metal parts shall be cadmium plated. The finish shall be baked enamel. The cement, where used, shall be moisture and fungus proof. The voice coil shall have a nominal impedance of 8 ohms. Overall diameter shall be 8⅝" and the maximum depth shall be 3⅜". Weight shall be 2 pounds, 14 ounces (with U-704 transformer). Mounting holes on the basket shall be E.I.A. standard (permitting use of standard plaster rings, fixtures, etc.) Mounting holes shall be provided on the rear of the basket for a Muzak speaker transformer. Finish shall be Muzak blue enamel.

APPLICATIONS

Wherever there is heavy moisture content, contaminated vapor atmosphere or exposure to the elements. Examples: Steam laundries, textile dye houses, electroplating plants, platemaking operations, health clubs, poolside at motels, in gardens and patios, shopping center canopies.



Model MOD-810

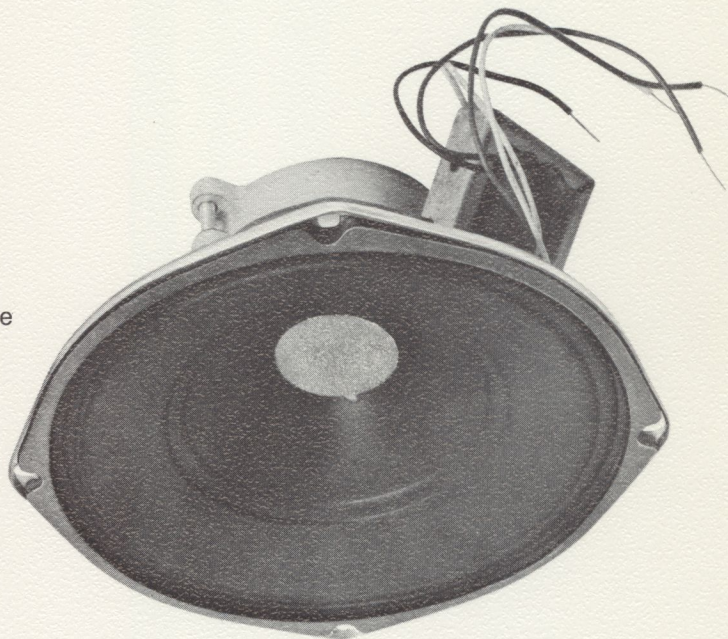
SPECIFICATIONS

Frequency Response	50—7000 Hz
Power Handling Capacity	12 Watts
Flux Density	11,000 Gauss
Sound Pressure Level	The axial sound pressure level at a distance of 7½ feet from the speaker is 87 db at an input of 1 Watt at 1000 Hz
Cone	Mylar coated
Voice Coil	8 ohms
Mounting	Four equally spaced holes on 7⅝" diameter
Transformer Mounting	Frame will accommodate speaker transformer
Size	8⅝" diameter, 3⅜" deep
Weight	2 lbs., 14 oz. (with U704 transformer)
Finish	Muzak blue enamel
Packing	Individually packed, 10 to a standard carton

Section V File C-3R

FEATURES

- Highly moisture and rust resistant
- 10 ounce ceramic magnet for high efficiency
- Cone phenolic impregnated to form complete moisture barrier
- All cements used are moisture and fungus proof
- Baked enamel finish
- Low distortion, excellent reproduction and efficient
- Heavy gauge rugged construction



Model MOD-810A

GENERAL DESCRIPTION

The Muzak Model MOD-810A is an 8 inch loudspeaker using a 10 oz. magnet. It has been designed to operate in areas of high moisture content or contamination by the use of a phenolic impregnated cone and the application of a rugged baked enamel finish on the metal parts.

ARCHITECT'S/ENGINEER'S SPECIFICATIONS

The loudspeaker shall be Muzak model MOD-810A. It shall be the permanent magnet cone type. The magnet shall be 10.0 ounces of ceramic. Sensitivity shall be such that a sound pressure of 87.5 db (on axis) at a distance of 7½ feet is produced with an input of one watt at 1000 Hz. The cone shall be phenolic impregnated. The finish shall be baked enamel. The cement where used, shall be moisture and fungus proof. The voice coil shall have a nominal impedance of 8 ohms. Overall diameter shall be 8⅜" and the maximum depth shall be 3⅜". Weight shall be 2 pounds, 14 ounces (with U-704 transformer). Mounting holes on the basket shall be E.I.A. standard (permitting use of standard plaster rings, fixtures, etc.) Mounting holes shall be provided on the rear of the basket for a Muzak speaker transformer. Finish shall be Muzak blue enamel.

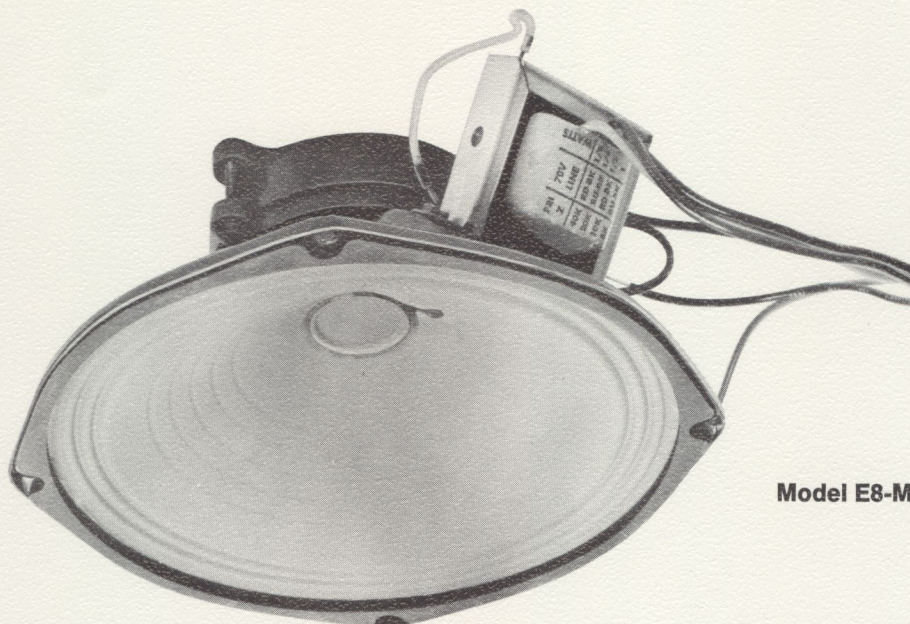
APPLICATIONS

Wherever there is heavy moisture content, contaminated vapor atmosphere as exposure to the elements. Examples: Steam laundries, textile dye houses, electroplating plants, platemaking operations, health clubs, poolside at motels, in gardens and patios, shopping center canopies.

SPECIFICATIONS

Frequency Response	80 Hz-8500 Hz
Power Handling Capacity	15 watts
Flux Density	11,000 Gauss
Sound Pressure Level	87.5 db at 7½ feet with one watt at 1000 Hz
Cone	Phenolic impregnated
Voice coil	8 ohms
Mounting	Four equally spaced holes on 7⅝" diameter
Transformer Mounting	Frame will accommodate speaker transformer
Size	8⅜" diameter, 3⅜" deep
Weight	2 lbs., 14 oz. (with U-704 transformer)
Finish	Muzak blue enamel
Packing	Individually packed 10 to a standard carton

Section V File C-11



Model E8-M10

GENERAL DESCRIPTION

The Muzak E8-M10 loudspeaker reproduces music and voice with full fidelity. The frequency response (50 Hz to 18,000 Hz) and power handling capacity of fifteen watts make it ideal for all types of audio installations. The E8-M10 is suitable for either recessed or surface mounting.

Voice coil and magnetic structure alignment is accurate and secure assuring maximum reliability and durability. The ceramic magnet assembly represents several years of successful research and experimentation.

Mounting holes in the basket are E.I.A. standard, permitting the use of standard plaster rings, fixtures, etc. Mounting holes for Muzak speaker transformer are on the rear of the basket. Compact ceramic magnet makes mounting easy where space is a problem.

ARCHITECT'S/ENGINEER'S SPECIFICATIONS

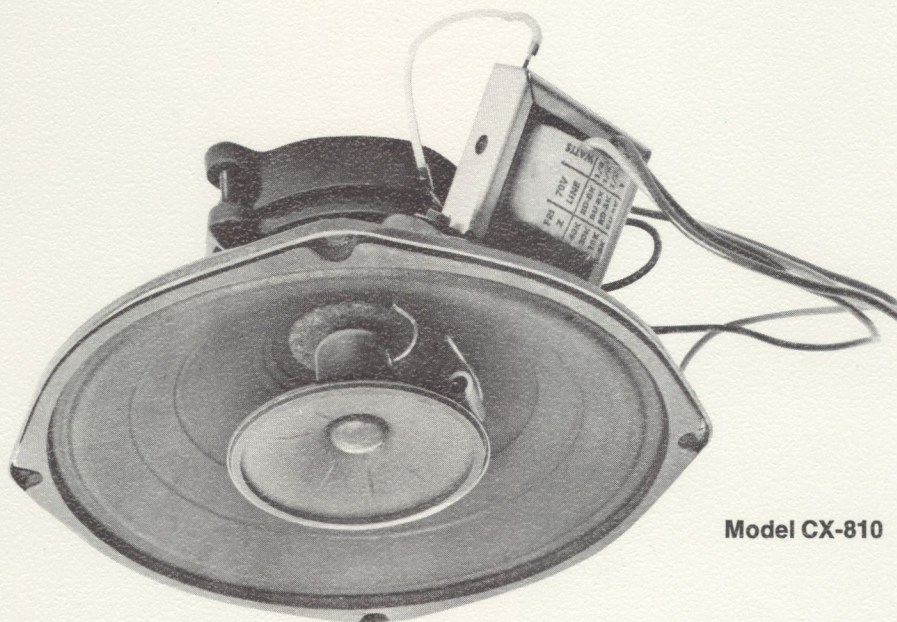
The loudspeaker shall be Muzak E8-M10. It shall be the permanent magnet, cone type. The magnet shall be 10.0 ounces of Ceramic. Sensitivity shall be such that a sound pressure level of 93 db (on axis) at a distance of 7½ feet is produced with an input of one watt at 1000 Hz. The power handling capability shall be 15 watts of program material. The voice coil shall have a nominal impedance of 8 ohms. Overall diameter shall be 8⅜"

and maximum depth shall be 3⅜". Weight shall be approximately 2¼ pounds. Mounting holes on the basket shall be E.I.A. standard (permitting use of standard plaster rings, fixtures, etc.) Mounting holes shall be provided on the rear of the basket for Muzak speaker transformer. Finish shall be baked silver enamel.

SPECIFICATIONS

Frequency Response	50 Hz to 18,000 Hz
Power Handling Capacity	15 watts of program material
Flux Density	11,000 Gauss
Sound Pressure Level	93 db at 7½ feet with one watt at 1000 Hz
Cone	Dieformed with lacquer treatment
Voice Coil	8 ohms
Mounting	Four equally spaced holes on 7⅝" diameter
Transformer Mounting	Frame will accommodate Muzak line transformer
Magnet	10.0 oz. ceramic
Size	8⅜" diameter, 3⅜" deep
Weight	2¼ pounds
Finish	Baked silver enamel
Packing	16 units per carton

Section V File C-12



Model CX-810

GENERAL DESCRIPTION

The Muzak CX-810 Co-Axial loudspeaker has been designed to reproduce voice and music with full fidelity. It is also ideal for those installations requiring the use of "white noise" sound masking.

The CX-810 is an 8" speaker with a 3" speaker mounted co-axially. The "woofer" magnet is 10 oz. and the "tweeter" magnet is 1 oz. The frequency response is 65 Hz to 13,000 Hz. The power handling capacity of 15 watts make it ideal for all types of audio installations.

Mounting holes in the basket are E.I.A. standard, permitting the use of standard plaster rings, fixtures, etc. Mounting holes for Muzak speaker/transformer are on the rear of the basket. Compact ceramic magnet makes mounting easy where space is a problem.

ARCHITECT'S/ENGINEER'S SPECIFICATIONS

The loudspeaker shall be the Muzak CX-810 Co-Axial. It shall be of the permanent magnet, cone type. The magnet on the "woofer" shall be 10.0 ounces. The "tweeter" magnet shall be 1.0 ounce equivalent high energy. Sensitivity shall be such that a sound pressure level of 93 db (on axis) at a distance of 7½ feet is produced with an input of one watt at 1,000 Hz. The cone shall be one piece molded. The power handling capacity shall be 15 watts of program material. The voice coils of the "woofer" and "tweeter" shall be 8 ohms for each unit. Overall diameter shall be 8⅜" and maximum depth shall be 3⅜". Weight shall be approximately 2½ pounds.

Mounting holes on the basket shall be E.I.A. standard (permitting use of standard plaster rings, fixtures, etc.) Mounting holes shall be provided on the rear of the basket for Muzak speaker/transformer. The finish shall be baked blue enamel.

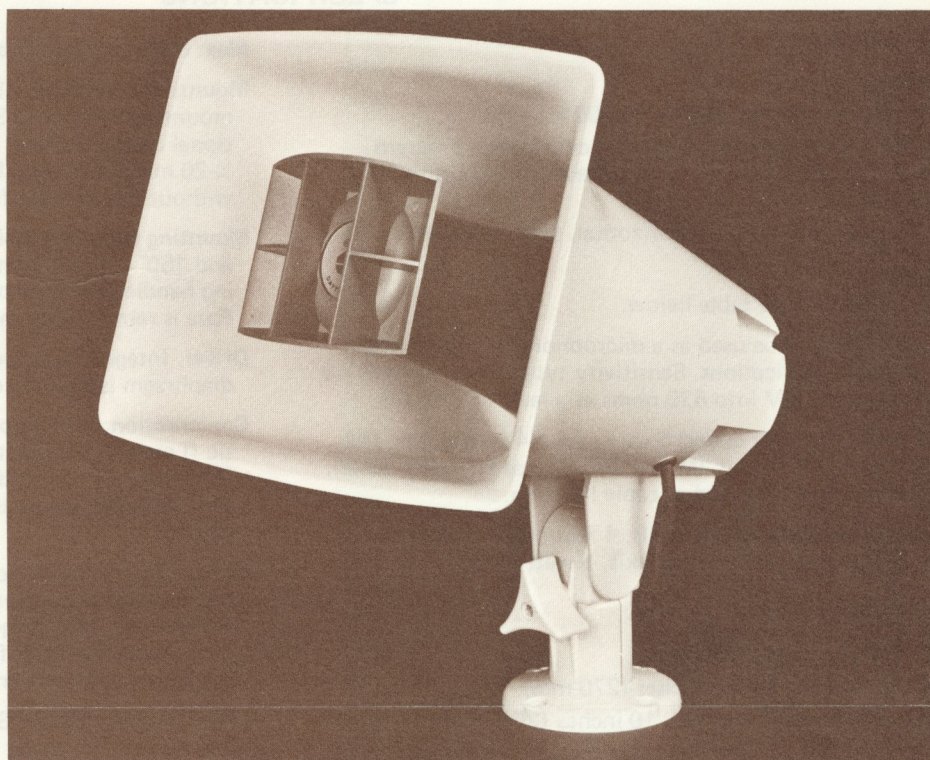
SPECIFICATIONS

Frequency Response	65 Hz to 13,000 Hz
Power Handling Capacity	15 watts program material
Flux Density (Woofer)	11,000 Gauss
Flux Density (Tweeter)	6,100 Gauss
Sound Pressure Level	93 db at 7½ feet with 1 watt at 1,000 Hz
Cone (Woofer)	Molded paper
Cone (Tweeter)	Die formed paper
Voice Coil (Woofer)	8 ohms
Voice Coil (Tweeter)	8 ohms
Mounting	Four equally spaced holes on 7⅝" diameter
Transformer Mounting	Frame will accommodate Muzak line transformer
Magnet (Woofer)	10.0 oz. ceramic
Magnet (Tweeter)	1 oz. equivalent high energy
Finish (Woofer)	Blue enamel
Finish (Tweeter)	Zinc plate
Size	8⅜" diameter, 3⅜" deep
Weight	2½ pounds
Packing	Individually packed, 10 units per carton

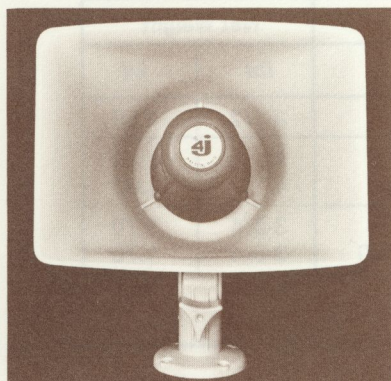
**16****watt -****5****watt**

Outdoor Music/Paging/Talk-Back Speakers from Fourjay

**200 & 216 ▶
Models
16 watts**



**205 Models
5 watts**



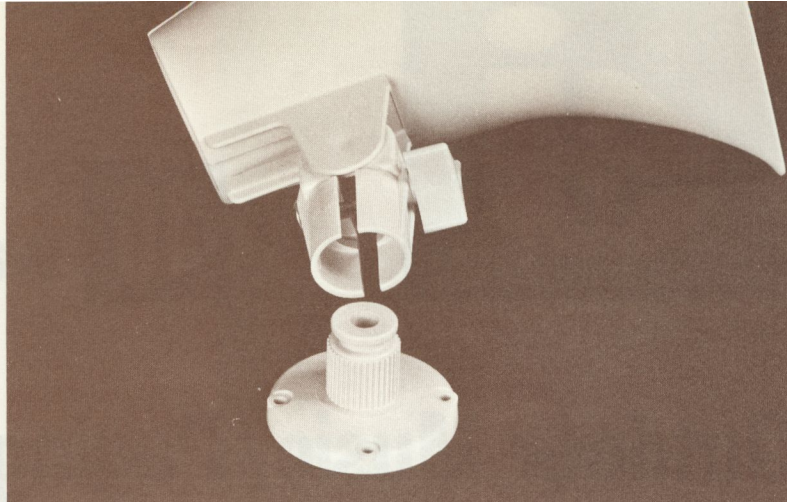
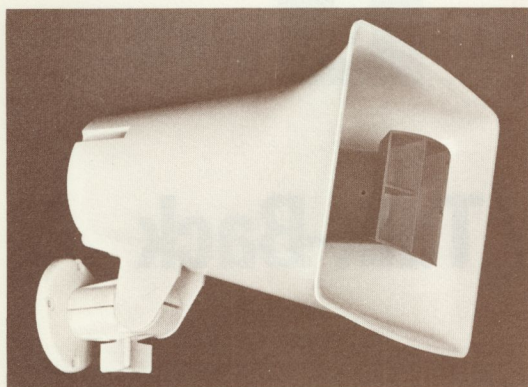
Score two more wins for Fourjay non-metallic re-entrant type horn speakers.

These new models - 16 and 5 watts - join our 32-watt 132-TD to give you complete flexibility in music, paging, public address, and talk-back applications. And, like the 132-TD they feature superior sound quality and installation ease like nothing you've ever used.

Compare the specifications - compare the sound. Compare speech intelligibility with metallic horn speakers. You'll know why we say, "the harder you drive us, the better we look".

Specifications on other side . . .

FOURJAY 200 SERIES RE-ENTRANT HORN SPEAKERS



Base is removable for mounting, provides positive locking.

◀ Speaker may be mounted in any position.

SPECIFICATIONS

ELECTRICAL

Output.

Frequency Range: 300 to 14,000 Hz.

Power Handling: 16 and 5 watt continuous program material. Rated sound pressure level across entire frequency band.

Coverage Angle: 120° Horizontal, 100° Vertical.

Input.

Impedance: See table below.

Talk-Back. Can be used as a microphone in paging and intercom applications. Sensitivity typically 9 mV into 40 ohms or 23 mV into 625 ohms at a level of 71.6 dB.

Connection. Color coded 5-wire cable (4 power taps and common), 30" long. (Model 200-8D has two-wire cable). Coding legend marked at cable location.

Sound Pressure Level. 121 dB, 4 feet on axis, 16 watt models. 115 dB, 4 feet on axis, 5 watt models.

PHYSICAL

Net Weight. See table below.

Length overall. 10-5/8 inches (270 mm).

Max. Width at flair of bell. 10 inches (254 mm).

Max. height at flair of bell. 7-3/8 inches (187 mm).

Mounting Base Plate. 3½ inches (89 mm) diameter. 4 mounting holes on 2-3/4 inch (70 mm) centers. Additional concealed hole in center of base accommodates a ¼-20 machine screw. Easily removed from assembly without disassembly for fast, easy mounting.

Mounting Base Assembly. Fully adjustable 360° horizontal and 160° vertical. Serrated base and single easy-grip locking handle provide rapid positioning and positive locking. Base is removed for mounting.

Driver. Integral with speaker. Phenolic impregnated cloth diaphragm is positive centering and field replaceable.

Construction. High impact ABS housing. Engineering plastic (Lexan®) base is stronger and tougher than die casting. Also used for sound chamber and all centering rings. Weatherproof design is ideally suited for salt water atmospheres.

Design. Scientifically computed flared bell. 16-watt models feature special diffuser for close field, wide angle coverage. No piercing, high frequency hot spots on axis, and less dispersion narrowing as frequency increases. 300 Hz low frequency cut-off, with no tinny gramophone effect.

Color. Fourjay Desert Sand with Mocha Accent.

Models Available

Model No.	Rated Input	Rated Power Watts	Input Taps		Net Weight	
			Watts	Ohms	lbs	kg
200-8D	8 ohms	16	—	—	3-1/2	1.59
216/25-TD	25 v. line	16	16, 8, 4, 2	40, 80, 158, 312	4	1.82
216/70-TD	70.7 v. line	16	16, 8, 4, 2	312, 625, 1250, 2500	4	1.82
205/25-T	25 v. line	5	5, 2, 1, ½	150, 312, 625, 1250	3-3/4	1.70
205/70-T	70.7 v. line	5	5, 2, 1, ½	1200, 2500, 5000, 10,000	3-3/4	1.70

® Trademark of General Electric Company

FOURJAY INDUSTRIES, Inc.

Horn Sales Division

2801 Ontario Avenue, Dayton, Ohio 45414
Telephone (513) 278-9416

IN CANADA: Len Finkler, Ltd.

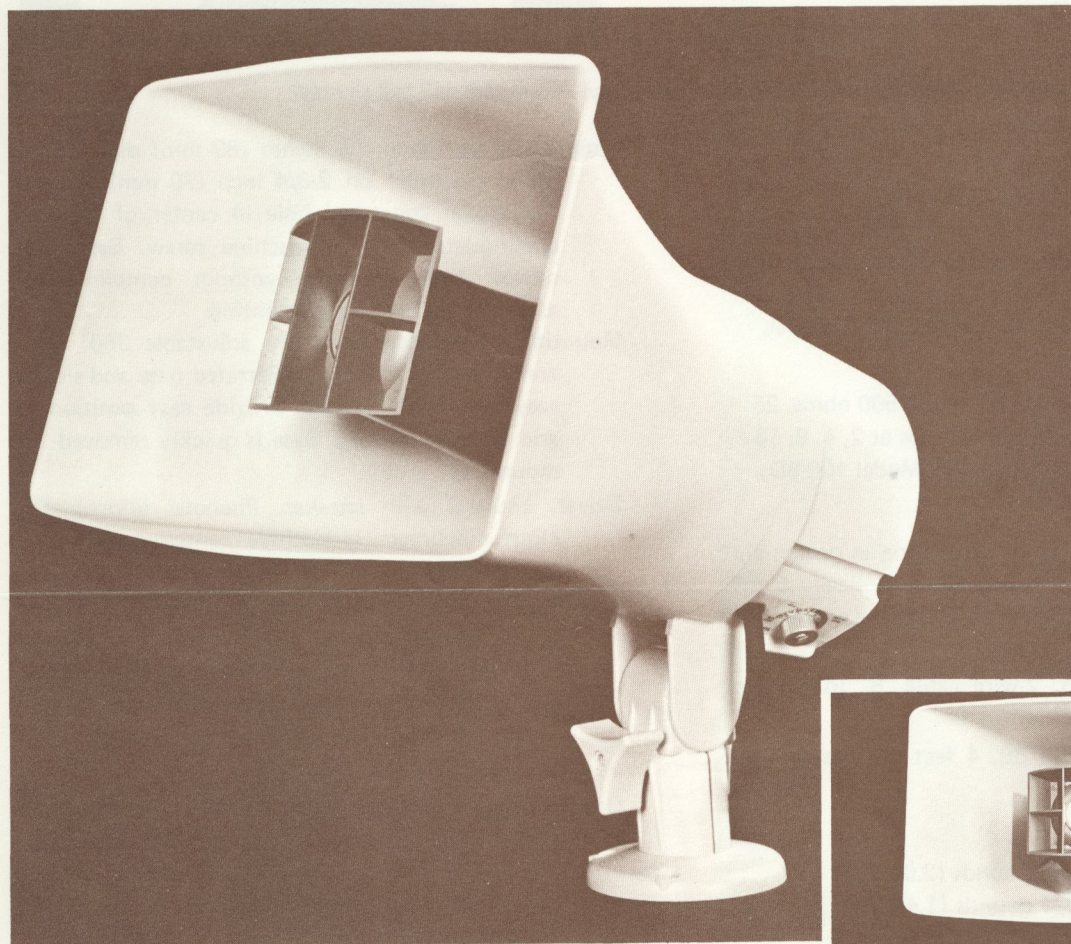
25 Toro Road, Downsview, Ontario M3J 2A6
Telephone (416) 630-9103



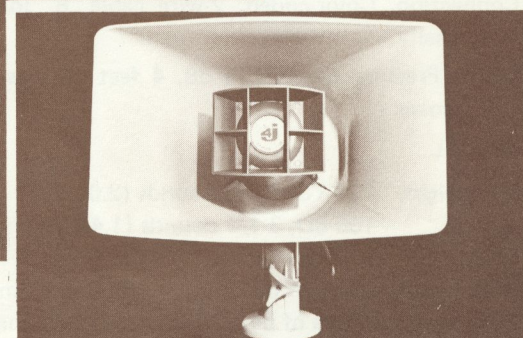
NOW AVAILABLE
IN TWO MODELS

It's NEW!
It's from FOURJAY
...and it's GREAT!

100 Series 32-Watt
OUTDOOR MUSIC / PAGING
TALK-BACK SPEAKER

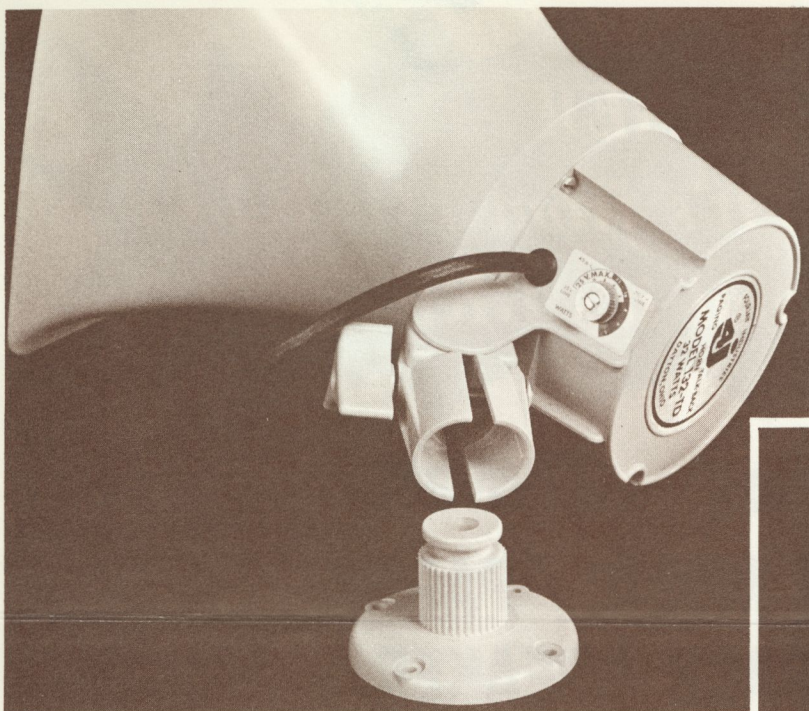


Model 132-TD



Now from Fourjay, a powerful, new, high efficiency concept in a re-entrant type horn speaker. The result of more than two years of concerted engineering effort in which dozens of designs were rejected, this great speaker brings a new dimension of sound quality to music and voice reproduction. Use it for music, use it for paging, use it for public address - however you use it the 132-TD will provide high quality sound reproduction.

SEE OTHER SIDE FOR SPECIFICATIONS



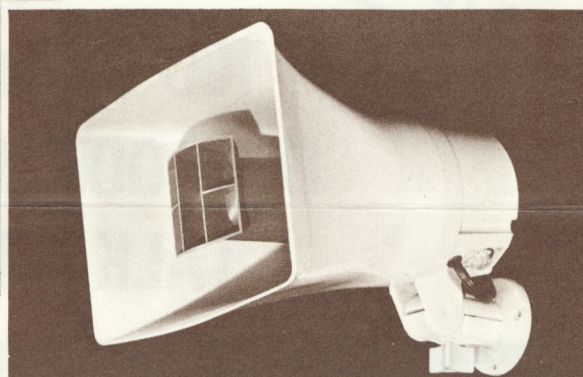
AVAILABLE IN TWO MODELS

Model 132-TD:

45 or 500 ohms, 25 or 70.7 volt line, switch selectable power taps.

Model 100-8D:

8 ohms only (no switch).



Model 132-TD

These SPECIFICATIONS tell part of the story - Your ears will tell the rest

ELECTRICAL

Output

Frequency range: 250 to 14,000 Hz.

Power Handling: 32 watts continuous program material. Rated sound pressure level across entire frequency band.

Coverage Angle: 120° Horizontal, 90° Vertical.

Input

Impedance: Model 132-TD, 45 or 500 ohms. 25 and 70.7 volt line with power taps at 2, 4, 8, 16 and 32 watts, switch selectable. Model 100-8D, 8-ohms only.

Talk-back. Can be used as a microphone in paging and intercom applications. Sensitivity typically 9 mV into 45 ohms or 23 mV into 500 ohms at a level of 71.6 db.

Connection. Color-coded, 2-wire cable, 8" long, nominally.

Sound Pressure Level. 125 dB, 4 feet on axis at rated power.

PHYSICAL

Net weight. 132-TD, 4-1/2 pounds (2.04 kg).
100-8D, 3-1/4 pounds (1.48 kg).

Length overall. 11-1/2 inches (292 mm).

Max. width at flare of bell. 12-1/4 inches (315 mm).

Max. height at flare of bell. 7-5/8 inches (194 mm).

Mounting Base Plate. 3 1/2 inches (89 mm) diameter. 4 mounting holes on 2-3/4 inch (70 mm) centers. Additional concealed hole in center of base accommodates a 1/4-20 machine screw. Easily removed from assembly without complete disassembly for fast, easy mounting.

Mounting Base Assembly. Fully adjustable 360° horizontal and 120° vertical. Serrated base and single, easy-grip locking handle provide easy positioning and positive locking. Base is quickly removed for mounting.

Driver. Integral with speaker. Phenolic impregnated cloth diaphragm is positive centering and field replaceable.

Construction. High impact ABS housing. Engineering plastic (Lexan®) base is stronger and tougher than die casting. Also used for sound chamber and all centering rings. Weatherproof design with plated brass external switch parts. Ideal for use in salt water atmospheres.

Design. Scientifically computed flaired bell with special diffuser for close field, wide angle coverage. No piercing, high frequency hot spots on axis, and less dispersion narrowing as frequency increases. 250 Hz low frequency cut-off, with no tinny gramophone effect.

Color. Desert Sand with Mocha accent.

® Trademark of General Electric Company

FOURJAY INDUSTRIES, INC

Horn Sales Division

2801 Ontario Avenue, Dayton, Ohio 45414

Telephone (513) 278-9416

IN CANADA: Len Finkler, Ltd.

25 Toro Road, Downsview, Ontario M3J 2A6

Telephone (416) 630-9103

Printed in U.S.A.

FOURJAY INDUSTRIES, INC.
Horn Sales Division
2801 Ontario Avenue
Dayton, Ohio 45414

HORN PRICE LIST
Effective Jan. 1, 1977

(513) 278-9416

							← Tear Off →		
MODEL NUMBER	RATED INPUT	RATED POWER	POWER TAPS (Watts)	STD. PKG.	SHIP. WT. #	RESALE PRICE	DISTRIBUTOR NET 1-5*	6-23*	24 up*
<u>100 Series</u>									
100-8D	8 ohm	32	-----	1	7	35.93	23.95	22.75	21.50
132-TD	25 & 70 v. line	32	32, 16, 8 4, 2.	1	7	44.78	29.85	28.36	26.87
<u>200 Series</u>									
200-8D	8 ohm	16	-----	1	6	28.43	18.95	18.00	17.10
205/25-T	25 v. line	5	5, 2, 1, .5	1	6	36.68	24.45	23.20	21.95
205/70-T	70 v. line	5	5, 2, 1, .5	1	6	36.68	24.45	23.20	21.95
216/25-TD	25 v. line	16	16, 8, 4, 2.	1	6	37.43	24.95	23.70	22.45
216/70-TD	70 v. line	16	16, 8, 4, 2.	1	6	37.43	24.95	23.70	22.45

* Assortment: Different models may be mixed for quantity pricing.

Terms: F.O.B. Dayton, Ohio, net 30 days.

Warranty: Fourjay will exchange or replace any defective unit or component within one year of purchase date. Warranty applies to defects in materials and/or workmanship.

Prices subject to change without notice.



speaker baffles

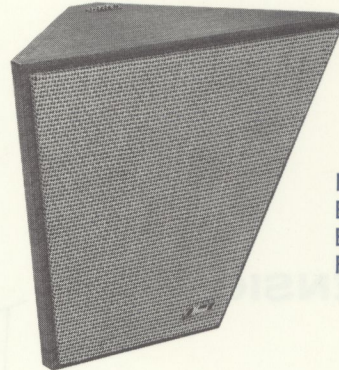
MUZAK BAFFLES

**Handsomely styled, ruggedly constructed
for faithful quality**

- Specially-designed and manufactured for Muzak use exclusively
- Unobtrusive thin-line design avoids unsightly bulk, enhances appearance
- Blonde or walnut finish – harmonizes aesthetically with all types of decor
- Durable wood-grained vinyl covering – resists dust, dirt, stains, scuffs and scratches. Can be scrubbed clean with soap and water
- Three-tone mesh front – tough, resilient, attractive
- Screw terminals on top for quick, easy wiring
- Convenient mounting clips for instant installation
- Glass wool-padded rear panel for effective sound insulation
- Heavy plywood, or pressed board vibration-free construction
- Sloping front for maximum coverage

APPLICATION:

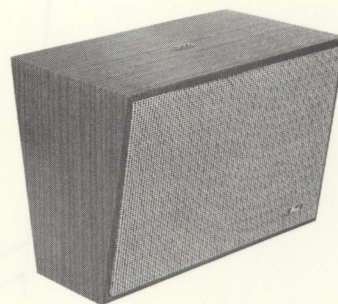
Muzak baffles are designed to provide faithful reproduction from the Muzak Extended Range speaker. Available in corner, wall and 2-way types to meet all requirements of surface-mounted installations. Thin-line designed for efficiency without unsightly bulk. Appealing appearance and color choice make Muzak baffles particularly suitable for restaurants, lounges, stores, lobbies, offices and other locations where decor is important.



Muzak Corner Baffle
BC—8W Walnut
BC—8B Blonde
For 8-inch Speakers

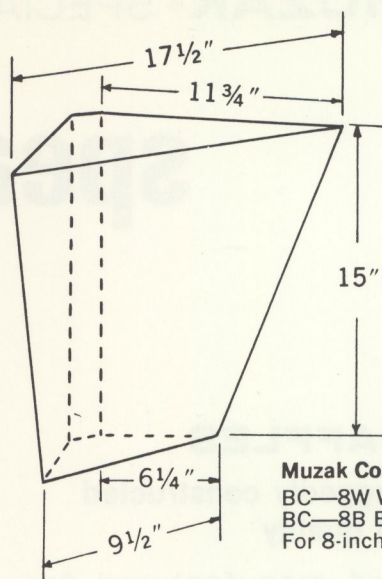


Muzak Wall Baffle
BW—8W Walnut
BW—8B Blonde
For 8-inch Speakers

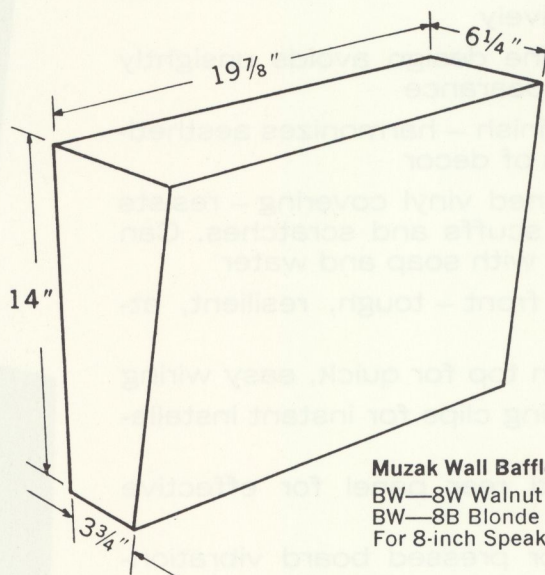


Muzak 2-Way Baffle
BT—8W Walnut
BT—8B Blonde
For 8-inch Speakers

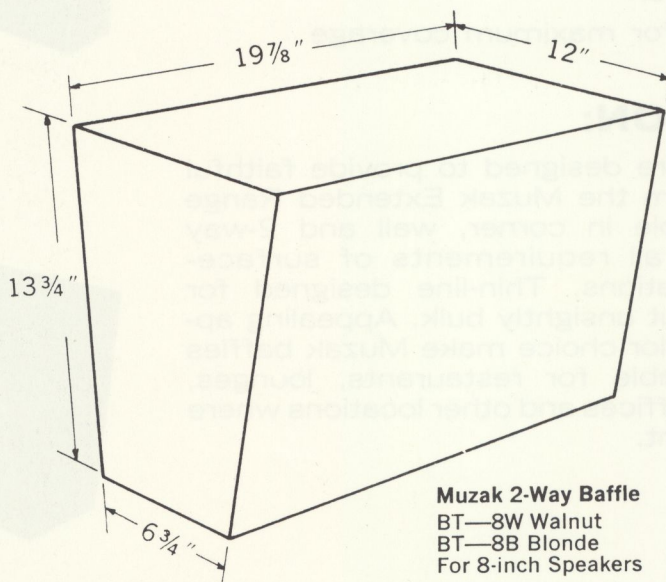
DIMENSIONS



Muzak Corner Baffle
 BC—8W Walnut
 BC—8B Blonde
 For 8-inch Speakers



Muzak Wall Baffle
 BW—8W Walnut
 BW—8B Blonde
 For 8-inch Speakers



Muzak 2-Way Baffle
 BT—8W Walnut
 BT—8B Blonde
 For 8-inch Speakers

CONTACT YOUR LOCAL MUZAK® REPRESENTATIVE

MUZAK® SPECIALISTS IN SOUND

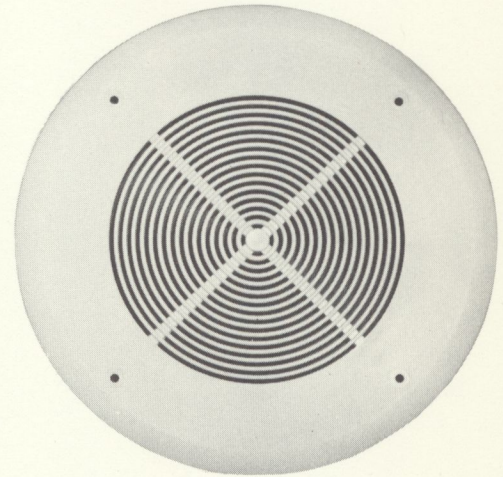


ceiling grills

DESCRIPTION

The MUZAK CR-8W styron baffle for 8 inch speakers is an all white round design that blends with any ceiling or wall material. The open grill area is greater than 43% assuring good dispersion and efficiency. Fast installation is made possible by the use of "Easy-on, Easy-off" stud mounting. The contoured edge of the baffle blends in the ceiling resulting in a less conspicuous installation.

Mounting hardware is furnished and consists of four white-headed screws and four push-on speaker nuts. The CR-8W baffle is non-resonant in the audio range. The diameter is eleven inches, thickness is approximately 3/16 inch.

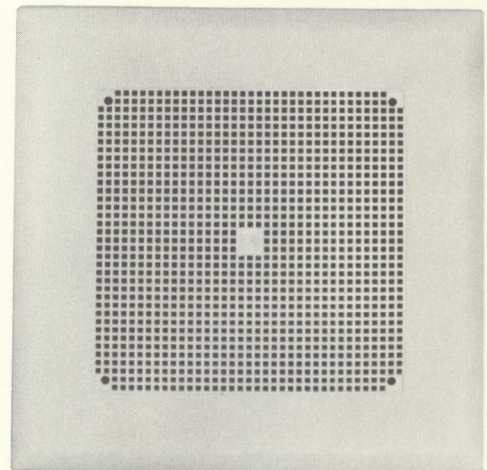


round baffle CR 8 W

DESCRIPTION

The MUZAK SS-8W styron baffle for 8" speakers is an all white square design that blends with ceiling and wall materials. The plastic surface may be painted with most types of interior finishes if desired. The grill area is 50% open, assuring excellent sound dispersion.

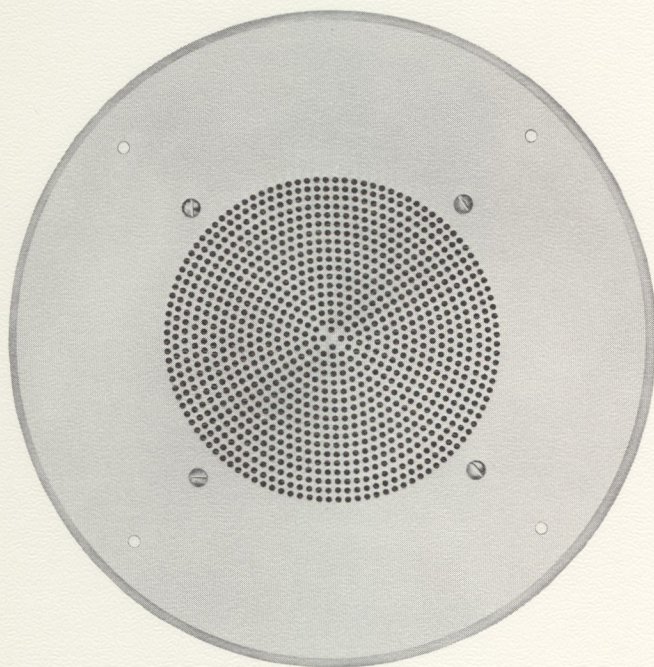
Fast installation is made possible by the use of "Easy-on, Easy-off" stud speaker mounting. Mounting hardware is furnished and consists of four white-headed screws and four push-on speaker nuts. The SS-8W baffle is non-resonant in the audio range. The dimensions are 10 3/4 inches square by 7/64 inch thick.



square baffle SS-8W

MUZAK CORPORATION

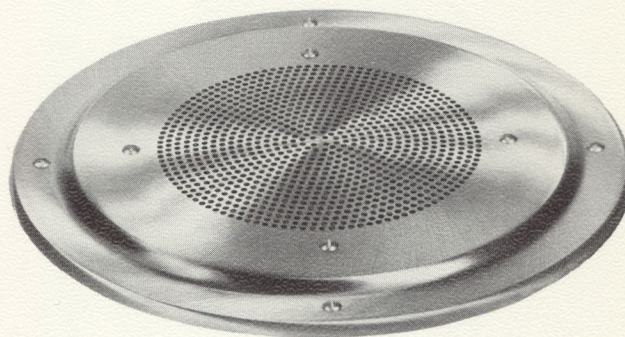
100 PARK AVENUE, NEW YORK, N.Y. 10017
SECTION V FILE C-6



Model M60-8

GENERAL DESCRIPTION

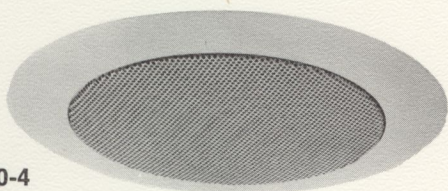
The M60-8 baffle is an aluminum trim ring for use with 8" loud speakers. It has a beautiful satin brushed finish with simple lines that blend well with modern architectural interiors and provides a truly flush appearance. The M60-8 is 12¾" in diameter and made with 20 gauge 2S-½ H aluminum. Mounts to M75-8 ring.



Model MM-222

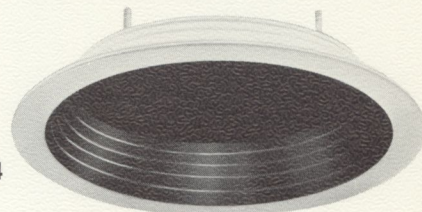
GENERAL DESCRIPTION

The MM-222 trim ring is a 20 gauge aluminum baffle with a satin brushed finish that will blend well with the modern architectural interior. The surface is protected by a baked-on varnish coat. In addition to the standard satin aluminum finish, MM-222 can be furnished in white enamel. Suffix the catalog number with "W" when ordering white. Mounts to M75-8 ring.



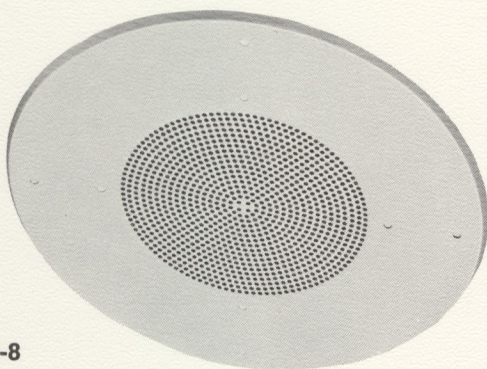
Model MT720-4

The MT720-4 is an all white contour ceiling baffle. It is designed to coordinate with lighting fixture trims. Mounting is accomplished with torsion springs. It is made with cold rolled steel and is 7 $\frac{3}{8}$ " in diameter and $\frac{1}{2}$ " deep. The MT720-4 will accommodate a 4" loudspeaker such as the Muzak C4M10/U704. Mounts to MPR-411 plaster ring.



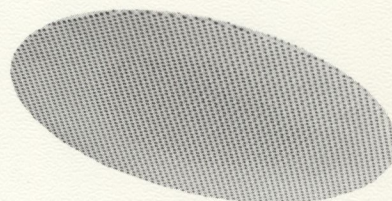
Model MT730-4

This two-tone, recessed, ceiling baffle has been designed to simulate recessed lighting fixtures. In addition, a clean overall appearance is assured by using torsion spring mounting. It is available with either a matte black or charcoal grey regressed interior with polar white trim. The MT730-4 is made of cold rolled steel and is 7 $\frac{3}{8}$ " in diameter and 1 $\frac{1}{8}$ " deep. It is designed to support the Muzak 4" loudspeaker C4M10/U704. Mounts to MPR-412 plaster ring.



**Model M51-8
Trim Ring**

The M51-8 series is an economical steel trim ring featuring one piece construction. Heavy gauge steel eliminates "give" when pressure is applied to mounting screws. A hard baked white finish may be used as a prime coat or an attractive final coat. The M51-8 is 12 $\frac{3}{4}$ " in diameter and made with 24 gauge cold rolled steel. It will accommodate an 8" loudspeaker. Mounts to M75-8 ring.

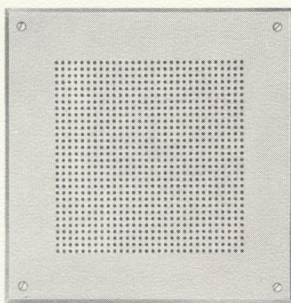


**Model MT710-4
Totally Perforated Baffle**

This white baked enamel ceiling baffle features a totally perforated surface for maximum sound transmission. Ideal for use in blown, acoustically treated ceilings. Simple clean lines, together with torsion spring mounting assembly make it a highly desirable baffle that works inconspicuously well in a wide variety of ceiling installations.

The MT710-4 is made with cold rolled steel and is 7 $\frac{3}{8}$ " in diameter. It will accommodate the Muzak C4M10/U704, 4" loudspeaker. Mounts to MPR 411 plaster ring.

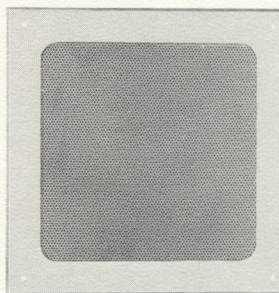
**Model M161-8
Trim Square**



The M161-8 recessed wall baffle is an economical steel trim square of one piece construction. A large perforated area is featured and speaker mounting is achieved through four weld studs. Square black "no leak" gasket is furnished for uniform appearance of perforated area. Finish is matte white baked enamel. Other colors available on special order.

The M161-8 is 11 $\frac{1}{2}$ " square with 7 $\frac{3}{8}$ " perforated square area. The baffle is made of 22 gauge cold rolled steel. The M161-8 is designed for use with an 8" speaker. Mounts to M72-8 plaster ring.

**Model M164-8
Trim Square**

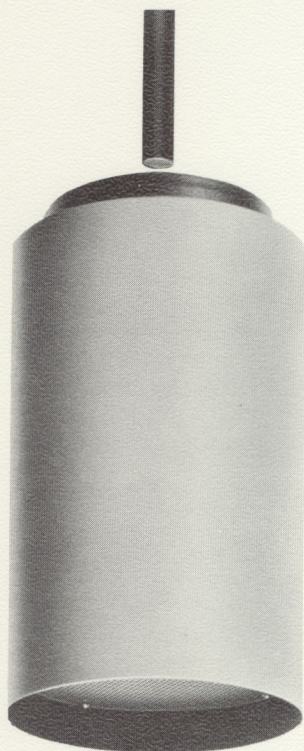


The M164-8 wall baffle is an attractive beveled edge trim square featuring a rectangular loudspeaker cutout. A separate loudspeaker mounting plate provides for an extended, "no leak," bass response. Large perforations in the protective screen simplifies repainting.

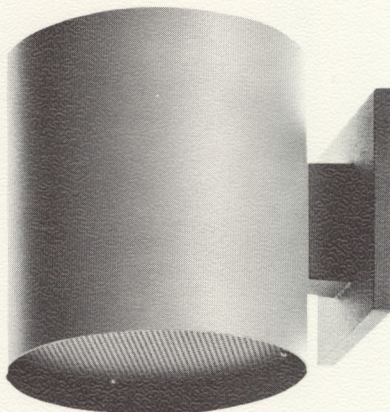
The standard finish is a flat polar white. The unit may also be furnished in an aluminum paint. Suffix the catalog number with "AL" when ordering the aluminum paint finish. The M164-8 is 12" square and will accommodate 8" loudspeakers. It is made with 20 gauge cold rolled steel. Mounts to M71-8 ring.

MUZAK®

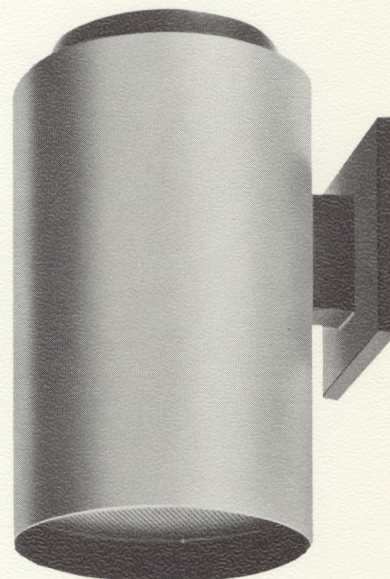
MODELS MX44, MX45 & MX46 SPEAKER/BAFFLE SYSTEM



Model MX44
Suspended/Surface



Model MX45
Bi-directional



Model MX46
Side Mount

GENERAL DESCRIPTION

Muzak's 4+ cylindrical baffle series represents an innovative approach to high quality workmanship and design. The range of shapes and colors assures you of a baffle suited to your needs. Each unit is manufactured of aluminum, finished in one of four available colors, with contrasting matte black canopies and regressed grilles. They include the MX44, which can be either surface mounted or suspended (with optional suspension hanger, series 435), the MX45, a bi-directional unit with cast aluminum base, the MX46, a side mount version with cast aluminum mounting base. Dimensions: MX44, MX46, 6" Diameter x 9¾" Deep, MX45 6" Diameter x 6" Deep. Recommended Speaker is the Muzak, C4M10/U704.

Suffix the model number with one of the following colors:

- A: Satin aluminum and black
- G: Bronze green and black
- B: Dura bronze and black
- W: Satin white and black

MUZAK

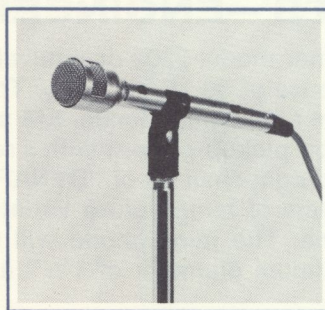
MUZAK CORPORATION • 100 PARK AVENUE • NEW YORK, NEW YORK 10017

MUZAK® SPECIALISTS IN SOUND



MUZAK/TURNER 2203

cardioid dynamic microphone



DESCRIPTION

The MUZAK/Turner model 2203 microphone is a directional type microphone specifically designed for use in broadcasting, recording, night clubs, public address or any applications where unwanted background noise creates a problem.

The model 2203's directional characteristics are such that it is "live" to sound originating in front of it and "dead" to sounds arriving from the rear.

The 2203 is especially good for the entertainment audio field.

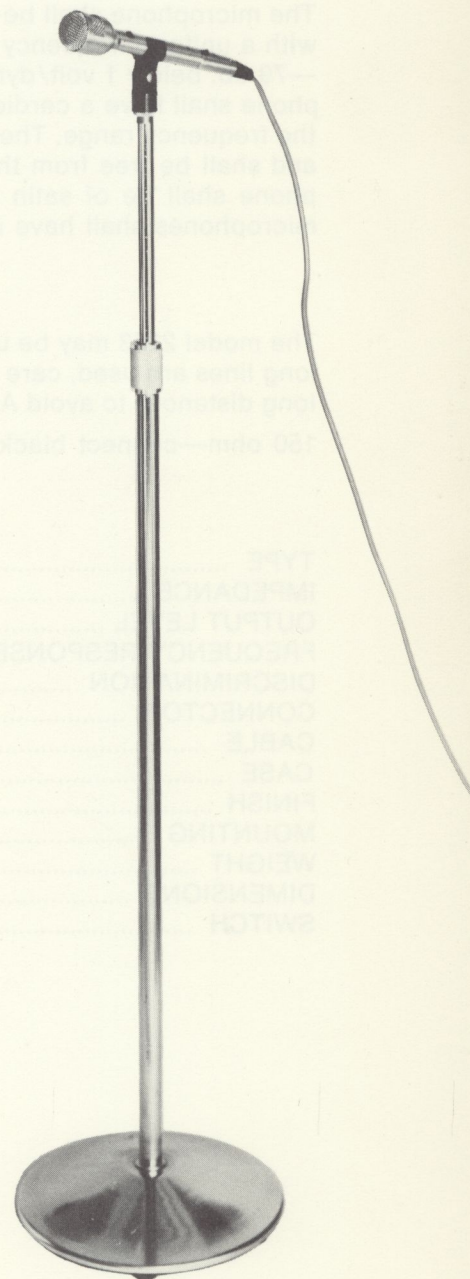
Turner's very rugged all steel construction (including grill screen) qualifies the 2203 for any sound job where extra abuse can be expected. The locking three pin cable connector enables the sound contractor to hang the mike over the stage if necessary.

The 2203 is very versatile and easily switchable from use as a hand microphone back to stand mounting.

The active element of the model 2203 is a single moving coil on a plastic diaphragm. Concealed ports allow entrance of the sound to the rear of the diaphragm to provide the controlled combination of pressure and phase shift that results in the cardioid pickup pattern.

The model 2203 is a well built, shock mounted microphone. It will withstand severe mechanical shock as well as extreme temperature and humidity.

The exclusive design of the model 2203 thus combines excellent fidelity, unusual sensitivity along with modern styling and durability and will give excellent performance.



MUZAK CORPORATION

100 PARK AVENUE, NEW YORK, N.Y. 10017
SECTION V FILE D-1

ARCHITECTS'—ENGINEER SPECIFICATIONS

The microphone shall be a Turner model 2203 or equivalent. The microphone shall be a dynamic type with a uniform frequency response of 50-15,000 c.p.s. The microphone shall have an output level of —79 db. below 1 volt/dyne/cm² at low impedance. EIA sensitivity rating shall be —151 db. The microphone shall have a cardioid type pickup pattern with a rear response that is down typically 20 db. over the frequency range. The diaphragm shall be of "DYNAFLEX" plastic having very high impact strength and shall be free from the effects of temperature variations and humidity. Case finish of the microphone shall be of satin chrome. The microphone will mount on a stand having $\frac{5}{8}$ "-27 thread. The microphones shall have a maximum diameter of 1 $\frac{1}{4}$ ", a length of 6", and a weight of 8 oz., less cable.

INSTALLATION

The model 2203 may be used with any amplifier having a low impedance input of 50 to 250 ohms. When long lines are used, care should be taken to see that the cable does not parallel A.C. power lines for long distances to avoid A.C. hum induction. The cable length is practically unlimited.

150 ohm—connect black and red cable conductors to pins 2 and 3. Shield is grounded to pin 1.

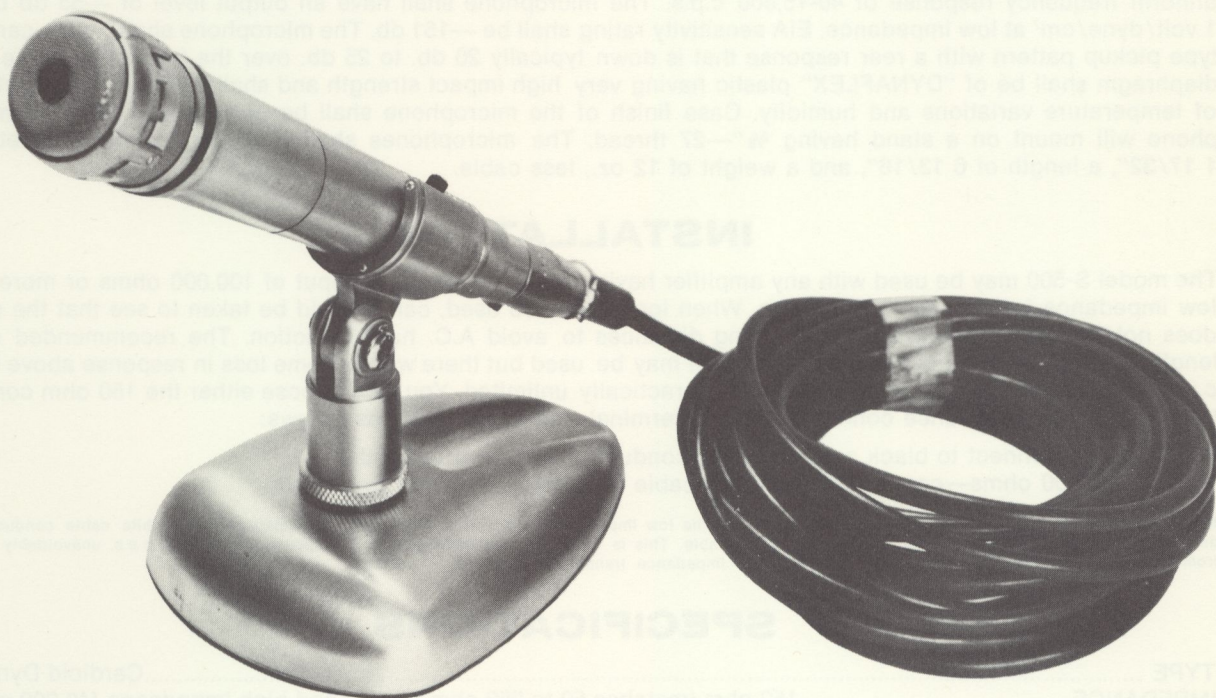
SPECIFICATIONS

TYPE	Cardioid Dynamic
IMPEDANCE	150 ohm (matches 50 to 250 ohm inputs)
OUTPUT LEVEL	—79 db. below 1 volt/dyne/cm ²
FREQUENCY RESPONSE	50—15,000 c.p.s.
DISCRIMINATION	Typically 20 db. over the frequency range
CONNECTOR	Switch, 3 pin
CABLE	Detachable 20 ft., three conductor, shielded
CASE	Machined Steel
FINISH	Satin chrome
MOUNTING	$\frac{5}{8}$ "—27 thread on stand adapter
WEIGHT	8 ounces without cable
DIMENSIONS	Diameter—1 $\frac{1}{4}$ ", Length—6"
SWITCH	Slide on-off switch, Line Shorting

MUZAK® SPECIALISTS IN SOUND



S-500 cardioid dynamic microphone



DESCRIPTION

The MUZAK/Turner S-500 Microphone is a cardioid dynamic microphone with directional characteristics designed for use in broadcasting, recording, night clubs, public address or other applications where unwanted background noise could create a problem.

The S-500's directional characteristics are such that it is "live" to sounds originating in front of it and "dead" to sounds arriving from the rear. This feature is a distinct advantage in many microphone applications, especially when acoustical feedback must be eliminated.

MUZAK's engineered uniformity eliminates any substantial variation in frequency response—makes all model S-500's interchangeable without affecting sound system acoustical quality.

All MUZAK model S-500's are subjected to a thorough check before the microphone is allowed to leave the plant. Because of this, you can be sure of getting a top performing microphone which features a newly designed Dynaflex diaphragm, a rugged microphone, despite its deceptively graceful, slender shape; a microphone with a high degree of sensitivity, and yet which cuts out the majority of the popping and breath noises even at close range.

MUZAK CORPORATION

100 PARK AVENUE, NEW YORK, N.Y. 10017
SECTION V FILE D-2

ARCHITECTS' & ENGINEERS' SPECIFICATIONS

The microphone shall be a MUZAK model S-500 or equivalent. The microphone shall be a dynamic type with a uniform frequency response of 40-15,000 c.p.s. The microphone shall have an output level of —55 db below 1 volt/dyne/cm² at low impedance. EIA sensitivity rating shall be —151 db. The microphone shall have a cardioid type pickup pattern with a rear response that is down typically 20 db. to 25 db. over the frequency range. The diaphragm shall be of "DYNAFLEX" plastic having very high impact strength and shall be free from the effects of temperature variations and humidity. Case finish of the microphone shall be of satin chrome. The microphone will mount on a stand having $\frac{5}{8}$ "—27 thread. The microphones shall have a maximum diameter of 1 17/32", a length of 6 13/16", and a weight of 12 oz., less cable.

INSTALLATION

The model S-500 may be used with any amplifier having a high impedance input of 100,000 ohms or more or a low impedance input of 50 to 250 ohms. When long lines are used, care should be taken to see that the cable does not parallel A.C. power lines for long distances to avoid A.C. hum induction. The recommended cable length is 20' on high impedance. Longer cable may be used but there will be some loss in response above 5,000 c.p.s. For low impedance the cable length is practically unlimited. You may choose either the 150 ohm connection or the high impedance connection at the terminal end of the cable as follows:

1. 150 ohm—connect to black and red cable conductors, shield grounded.
2. High (40,000 ohms)—connect to the white cable conductor, shielded grounded.

NOTE: In the event that the microphone is to be used with the low impedance connection only, it is suggested that the white cable conductor be disconnected permanently at the microphone end of the cable. This is because some deterioration of response above 5,000 c.p.s. unavoidably results from having cable capacity connected across the high impedance transformer winding.

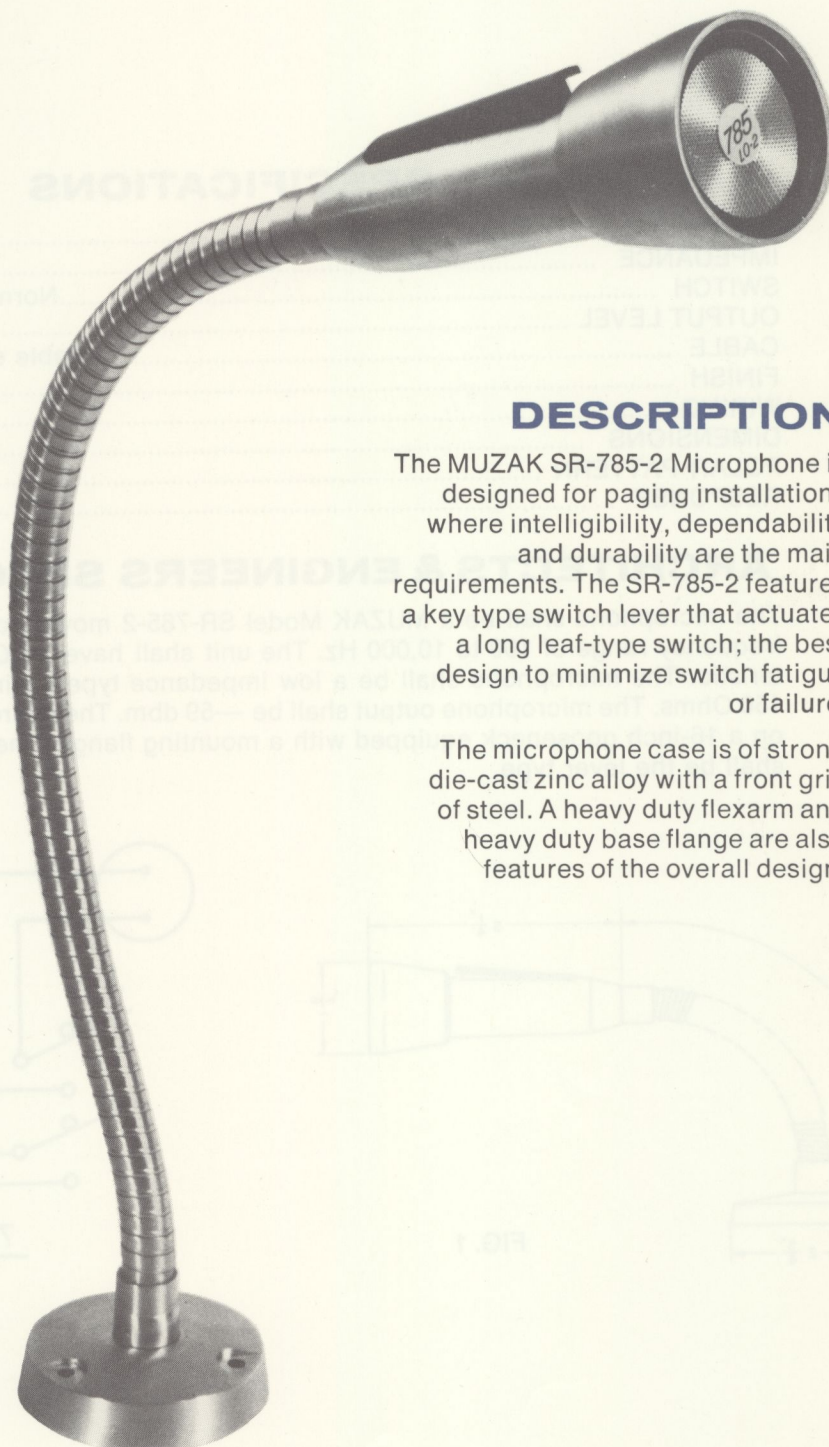
SPECIFICATIONS

TYPE	Cardioid Dynamic
IMPEDANCE	150 ohm (matches 50 to 250 ohm inputs) and high impedance (40,000 ohms)
OUTPUT LEVEL	—55 db. below 1 volt/dyne/cm ² (high impedance)
FREQUENCY RESPONSE	40-15,000 c.p.s. See Fig. 4
DISCRIMINATION	Typically 20 db. to 25 db. over the frequency range
CONNECTOR	Cannon 4 pin XLR-4-11C
CABLE	Detachable 20 ft. three conductor, shielded, black rubber jacketed
CASE	Die cast zinc alloy
FINISH	Satin chrome
MOUNTING	$\frac{5}{8}$ "—27 thread
WEIGHT	12 ounces without cable
DIMENSIONS	Diameter—1 17/32" — Length—6 13/16"
SWITCH	Available with on-off switch as model S 500

MUZAK® SPECIALISTS IN SOUND



SR-785-2 microphone



DESCRIPTION

The MUZAK SR-785-2 Microphone is designed for paging installations where intelligibility, dependability and durability are the main requirements. The SR-785-2 features a key type switch lever that actuates a long leaf-type switch; the best design to minimize switch fatigue or failure.

The microphone case is of strong die-cast zinc alloy with a front grill of steel. A heavy duty flexarm and heavy duty base flange are also features of the overall design.

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SECTION V FILE D-3

SPECIFICATIONS

TYPE	Dynamic
IMPEDANCE	150 Ohms
SWITCH	Normally open in off-position
OUTPUT LEVEL	—59 dbm
CABLE	Cable extends 4 ft. beyond base
FINISH	Satin Chrome
WIRING	See Fig. 2
DIMENSIONS	See Fig. 1
POLAR PATTERN	Omni-Directional
RESPONSE	100—10,000 Hz.

ARCHITECTS & ENGINEERS SPECIFICATIONS

The microphone shall be a MUZAK Model SR-785-2 moving coil dynamic type with a frequency range of 100 to 10,000 Hz. The unit shall have an Omni-Directional characteristic. The microphone shall be a low impedance type having a rated impedance of 150 Ohms. The microphone output shall be —59 dbm. The microphone shall be mounted on a 16-inch gooseneck equipped with a mounting flange. The "Press-To-Talk" switch shall be the lever type.

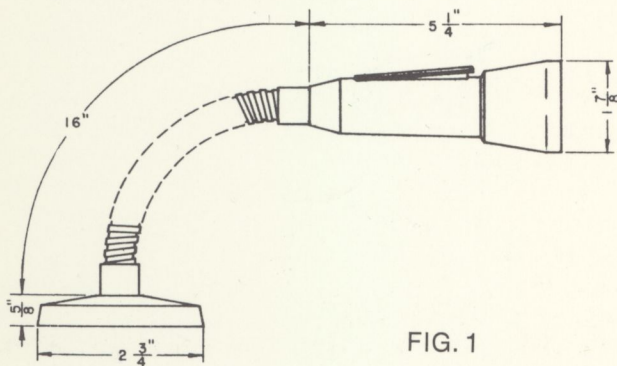
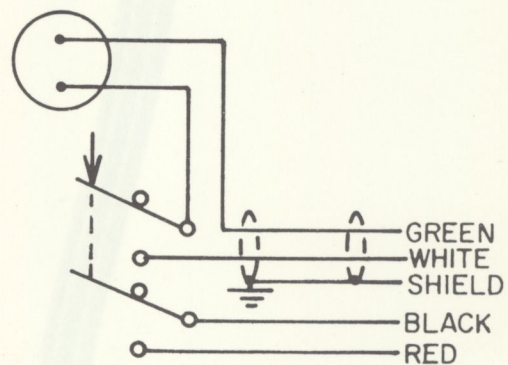


FIG. 1



785-L0-2 FIG. 2

MUZAK® SPECIALISTS IN SOUND



cm-414b microphone



DESCRIPTION

The MUZAK/Shure Model CM-414B is a rugged, low impedance microphone. It is encased in high impact Armo-Dur® which is a durable, lightweight plastic and comes with a 5½ foot neoprene-jacketed coil cord. This magnetic microphone is semidirectional with a push-to-talk, leaf-type switch. It is an ideal microphone for supermarkets, discount stores, etc.

SPECIFICATIONS

TYPE: Magnetic
FREQUENCY RESPONSE: 400 to 4,000 Hz
OUTPUT LEVEL: -52.5 db (o db=1 milliwatt per 10 microbars); 0.20 volt
IMPEDANCE: 150-250 ohms
POLAR PATTERN: Semidirectional
CASE: High Impact "Armo-Dur"®
CABLE: 4 Conductor, two-shielded neoprene jacketed coil cord, 5½ feet extended
SWITCH: Push-to-talk, leaf type, switch normally open
DIMENSIONS: 2 27/32" high, 2 1/16" wide, 1 23/32" deep
NET WEIGHT: 8 oz.
FURNISHED ACCESSORY: Mounting Bracket

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SECTION V File D-4

MUZAK® SPECIALISTS IN SOUND



M7L microphone



DESCRIPTION

The MUZAK/Turner Model M7L sets a new standard for paging applications. The stylish forward looking design of the M7L will make an attractive addition to any decor.

The rugged die-cast aluminum alloy case is finished in professional MUZAK blue with a black plastic touch bar, slide lock switch and style ring. The well balanced non-tip base is mounted on rubber feet to prevent marring of desk tops. The upright portion of the case is designed with a forward tilt to allow convenient operation without requiring the operator to lean forward.

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SECTION V FILE D-5

SPECIFICATIONS

TYPE	Dynamic
IMPEDANCE	150 ohms
OUTPUT LEVEL	—59 dbm.
CABLE	20 ft. (4 conductors, 2 shielded, 2 unshielded)
CASE	Die cast zinc alloy
FINISH	MUZAK Blue
WEIGHT	2½ lbs.
POLAR PATTERN	Omni-Directional
RESPONSE	60-10,000 Hz.

NOTE: 5 Pin Microphone Connector Optional

ARCHITECTS & ENGINEERS SPECIFICATIONS

The microphone shall be a MUZAK Model M7L moving coil dynamic type with a frequency range of 60-10,000 Hz. The unit shall have an Omni-Directional characteristic. The microphone shall be of the low impedance type having an impedance of 150 ohms. The microphone case shall be die-cast zinc alloy with a MUZAK blue finish. The microphone shall have a touch bar switch on the base wired for relay operation.

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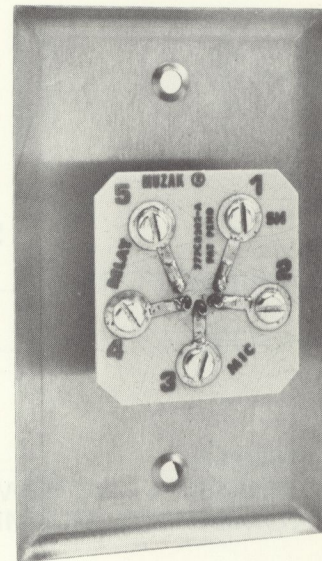


microphone receptacle terminal adapter

MODEL MO-5/PATENT PENDING

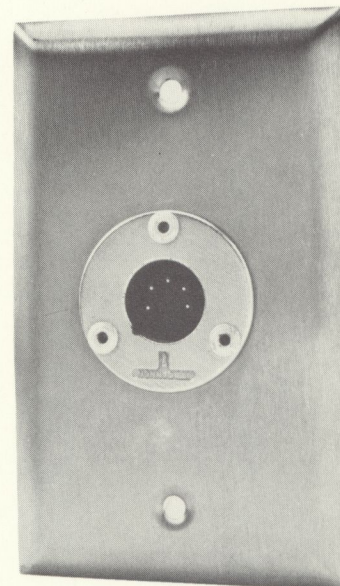
DESCRIPTION

The Muzak MO-5 Terminal Adapter consists of a Cannon XLR-5-14 recessed male connector mounted on a standard single gang chromed steel plate. A phenolic circuit board with five screw type terminals is attached to the rear of the receptacle. The screw terminals are connected to the receptacle by printed wiring on the phenolic board.



FEATURES

- Reduces installation time and costs.
 - No soldering required on job – unit is pre-wired.
- Permits several conductors to be connected to screw type terminals where heretofore only one conductor could be connected to a solder terminal.
- Simplifies trouble shooting.
- Reduces types of tools necessary for installation.
- Eliminates possibility of "cold-soldered" joint which may cause future trouble.
- Provides installation in "hard-to-get-at" places.
- Permits use of larger sized wire than could otherwise be used.



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SECTION V File D-6

SPECIFICATIONS

CONNECTOR: Recessed Five Pin Male-Cannon
XLR-5-14

PLATE: Standard single gang, steel,
3¾" x 4½"
(Mounting holes, 3-9/32"
Centers)

FINISH: Brushed chrome plate

TERMINAL SCREWS: Five, 6x32

NUMBERED TERMINALS: Five, 3 terminals for 2 wire
shielded microphone cable, 2
terminals for relay circuit, ⅞"
depth behind plate

MUZAK® SPECIALISTS IN SOUND



M1L 251 **dynamic microphone**

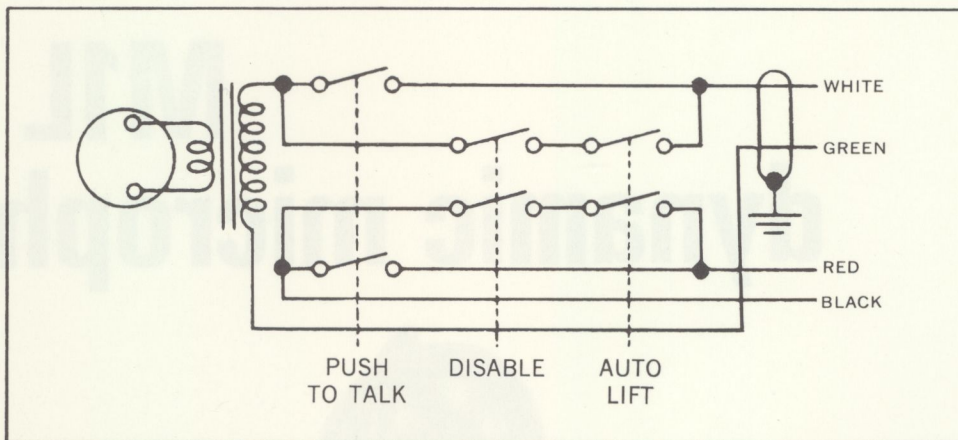


DESCRIPTION

The MUZAK Model M1L 251 microphone is excellent for close talking application. It performs exceptionally well for paging and announcing operations into areas of high noise level because its high frequency characteristic gives excellent intelligibility. May be used outdoors with minimum response from wind and can withstand nominal exposure to moisture because of its plastic diaphragm.

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SECTION V FILE D-7



SPECIFICATIONS

TYPE	Dynamic
IMPEDANCE	150 ohms
RESPONSE	70-13000 cps
OUTPUT LEVEL	-52 dbm (Re: 10 dynes/CM ²)
CABLE	20 feet
CASE FINISH	Satin chrome
DIMENSIONS	7 ³ / ₄ " high x 5 ¹ / ₂ " deep
WEIGHT	3 lbs.
POLAR PATTERN	Omni-directional

NOTE: 5 Pin Microphone Connector Optional

ARCHITECTS & ENGINEERS SPECIFICATIONS

The microphone shall be a pressure operated dynamic MUZAK Model 251 or equivalent. Frequency response shall be uniform from 70-13000 cps and shall be substantially independent of direction to the source of sound. Sensitivity shall be -52 dbm. (Re: 10 dynes/CM²). Impedance shall be 150 ohms.

The case shall be one piece die cast zinc alloy with satin chrome finish. Dimensions shall be 5¹/₂" deep x 7³/₄" high x 3³/₄" wide. The diaphragm shall be of "dynaflex" plastic, having high impact strength, and shall be independent of the effects of temperature and humidity. Cable shall be black four conductor, two shielded, 20 feet in length. The microphone shall have the following switching arrangements. (1) Touch front bar to talk; (2) lift switch in base; (3) on-off level lock switch on the side of the microphone base and a switch to disable the lift switch in the base (underside). The weight of the microphone shall be three pounds including cable.

Model M3L 253 Dynamic Microphone same as above except does not have lift switch in the base.

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FEATURES

- True cardioid pickup pattern: symmetrical about axis and uniform at all frequencies
- Response especially effective for announcing, narration, paging and music
- Cartridge shock mounted for quiet operation
- A built-in "ON-OFF" non-locking Push-to-talk switch — Controls both microphone circuit and a relay or control circuit
- Dependability and ruggedness under all operating conditions
- An 18" flexible gooseneck and a convenient mounting flange are supplied with the Model 515SB-G18

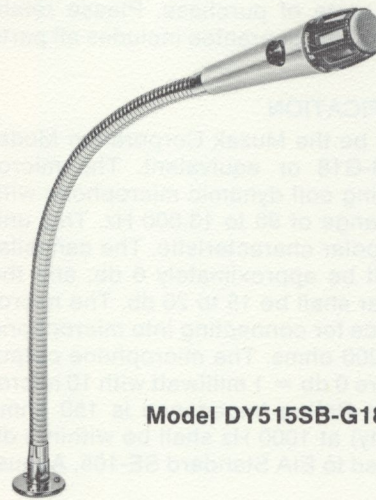
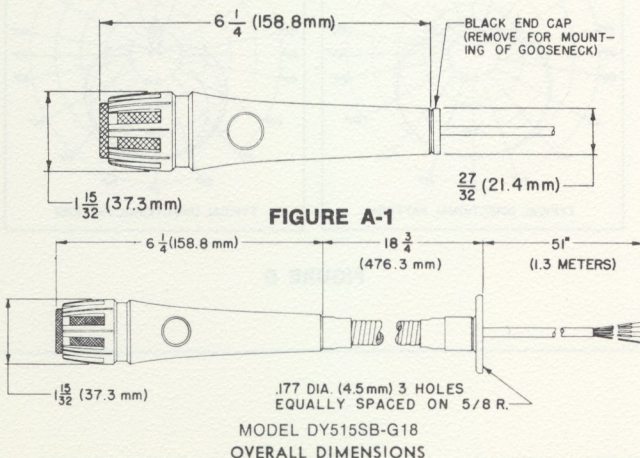
GENERAL DESCRIPTION

The MUZAK Models DY515SBG and DY515SB-G18 Unidyne B Microphones are low-impedance units designed specifically for flexible gooseneck application. The microphones are moving coil units providing good reproduction of music and voice.

These microphones are particularly suitable for use in language lab systems, paging applications, and base station communications. They are highly recommended for talk-back and cuing from professional control rooms in TV, film, and recording studios, and other uses demanding a customized installation with concealed cables.

MOUNTING

To mount the DY515SBG microphone on a gooseneck having a $\frac{5}{8}$ "-27 thread, unscrew black end cap from microphone, remove adjacent thin metal washer and one metal spacer off terminating end of cable. Slide the thin metal washer removed previously onto cable up into end of microphone. Slip gooseneck over cable and install into end of microphone.



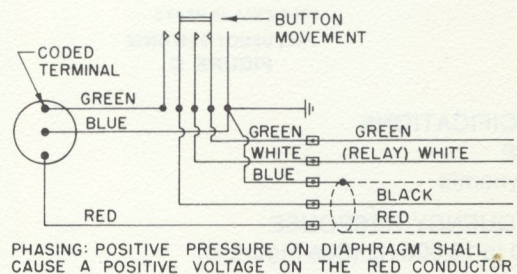
Model DY515SB-G18

CONNECTIONS

The microphones are low impedance for connecting into microphone inputs rated at 25 to 200 ohms.

Low impedance is recommended where long cable lengths are required or under conditions of severe hum disturbance. In this case the black and red conductors are connected to the microphone circuit. The shield is connected to the metal parts of the microphone. For unbalanced low impedance operation, the shield and red lead should be connected together. The black lead is then the "hot" lead. The green and white conductors are used to control an external relay or control circuit.

For use with a high impedance amplifier, the Shure A95A Series of Line Matching Transformers are available for coupling the low impedance line to the amplifier input.



INTERNAL CONNECTIONS
FIGURE B

IMPORTANT

Cables with plastic insulation should not be subjected to excessive soldering-iron heat. Carefully clean and tin the conductors and the connections to which the conductors are to be soldered. The soldering operation can then be done with a minimum of heat, thereby avoiding any possibility of damage to the cable.

MUZAK DY515SBG AND DY515SB-G18 UNIDYNE B

GUARANTEE

This Muzak product is guaranteed in normal use to be free from electrical and mechanical defects for a period of one year from the date of purchase. Please retain proof of purchase date. This guarantee includes all parts and labor.

ARCHITECT'S SPECIFICATION

The microphone shall be the Muzak Corporation Model DY515SBG, DY515SB-G18 or equivalent. The microphone shall be a moving coil dynamic microphone with a shaped frequency range of 80 to 13,000 Hz. This unit shall have a cardioid polar characteristic. The cancellation at the sides shall be approximately 6 db, and the cancellation at the rear shall be 15 to 20 db. The microphone is low impedance for connecting into microphone inputs rated at 25 to 200 ohms. The microphone output shall be -59.0 db where 0 db = 1 milliwatt with 10 microbars. The microphone Rating Impedance is 150 ohms and the Gm (sensitivity) at 1000 Hz shall be within 3 db of -153.0 db referenced to EIA Standard SE-105, August 1949.

The Model DY515SBG shall be suitable for mounting on a gooseneck having a $\frac{5}{8}$ "-27 thread. The microphone shall have a 70 inch (1.8 meter) four conductor (two shielded) cable. The overall dimensions shall be $6\frac{1}{4}$ (158.8 mm) in length and $1\frac{15}{32}$ " (37.5 mm) in diameter.

The Model DY515SB-G18 shall be mounted on a flexible gooseneck having a mounting flange. The microphone shall have a 51 inch (1.3 m) four conductor (two shielded) cable extending from gooseneck. The overall dimensions shall be 25 inches (635 mm) in length and $1\frac{15}{32}$ inches (37.3 mm) in diameter.

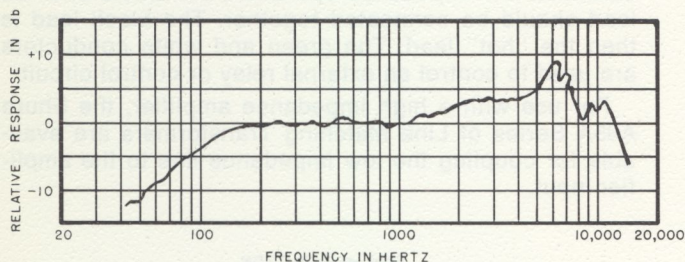


FIGURE C

SPECIFICATIONS

TYPE

Dynamic

FREQUENCY RESPONSE

80 to 13,000 Hz (See Figure C)

POLAR PATTERN

Cardioid (unidirectional) pattern—Effective rejection of sound at the rear of the microphone is uniform at all frequencies, while front pickup characteristics are uniform about the axis. (See Figure D)

MICROPHONE RATING IMPEDANCE

150 ohms. For connecting into microphone inputs rated at 25 to 200 ohms.

OUTPUT LEVEL

1000 Hz response

Low Impedance

Voltage Level - 81.0 db
(0 db = 1 volt per microbar)

Open Circuit Voltage - .089 mv
at (1 microbar)

Power Level - 59.0 db
(0 db = 1 milliwatt per 10 microbars)

EIA Microphone Rating Gm (Sensitivity) ... -153.0 db
(EIA Standard SE-105, August, 1949)

SWITCH

Built-in "ON-OFF" leaf type, non-locking switch.

SHOCK MOUNT

Internal vibration-isolation of rubber construction.

CABLE

Highly durable cable with effective hum shielding, four conductors (two shielded), plastic jacketed.

Model DY515SBG—70 inches (1.8 meter)

Model DY515SB-G18—51 inches (1.3 meter)
from gooseneck.

CASE

Chrome plated die cast case with black "Armo-Dur" grille and stainless steel screen.

Model DY515SB-G18 has chrome plated flexible arm and flange.

DIMENSIONS

See Figure A-1 for Model DY515SBG and Figure A-2 for Model DY515SB-G18

NET WEIGHT

Model DY515SBG - 15 ounces (425 grams)

Model DY515SB-G18 (with gooseneck)

2¼ pounds (1021 grams)

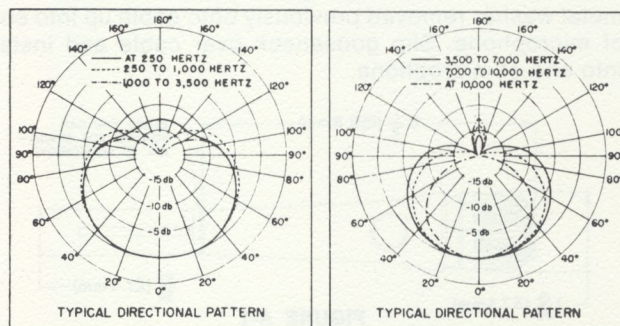
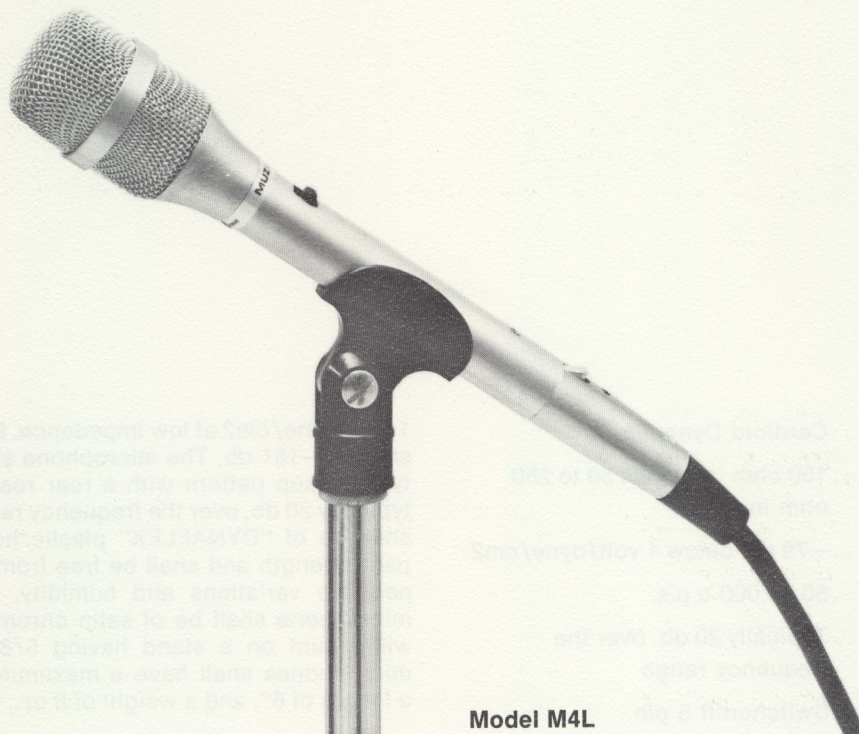


FIGURE D

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Model M4L

GENERAL DESCRIPTION

The MUZAK model M4L microphone is a directional type microphone specifically designed for use in broadcasting, recording, night clubs, public address or any applications where unwanted background noise creates a problem.

The model M4L's directional characteristics are such that it is "live" to sound originating in front of it and "dead" to sounds arriving from the rear.

The M4L is especially good for the entertainment audio field. The very rugged all steel construction (including grill screen) qualifies the M4L for any sound job where extra abuse can be expected. The locking 5 pin cable connector enables the sound contractor to hang the mike over the stage if necessary.

The M4L is very versatile and easily switchable from use as a hand microphone back to stand mounting.

The active element of the model M4L is a single moving coil on a plastic diaphragm. Concealed ports allow entrance of the sound to the rear of the diaphragm to provide the controlled combination of pressure and phase shift that results in the cardioid pickup pattern.

The model M4L is a well built, shock mounted microphone. It will withstand severe mechanical shocks as well as extreme temperature and humidity.

The exclusive design of the model M4L thus combines excellent fidelity, unusual sensitivity along with modern styling and durability and will give excellent performance.

MUZAK CARDIOID DYNAMIC MICROPHONE M4L

SPECIFICATIONS

Type	Cardioid Dynamic
Impedance	150 ohm (matches 50 to 250 ohm inputs)
Output Level	-79 db. below 1 volt/dyne/cm ²
Frequency Response	50-15,000 c.p.s.
Discrimination	Typically 20 db. over the frequency range
Connector	Switchcraft 5 pin
Cable	Detachable 20 ft., four conductor, two shielded
Case	Machined Steel
Finish	Satin chrome
Mounting	5/8" -27 thread on stand adapter
Weight	8 ounces without cable
Dimensions	Diameter-1 1/4", Length-6"
Available with 5 pin connector as model M4LP	

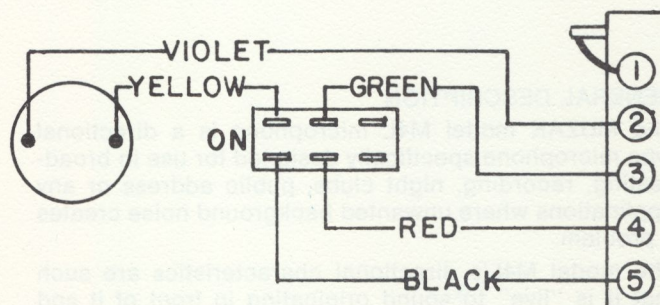
ARCHITECTS'-ENGINEER SPECIFICATIONS

The microphone shall be a MUZAK model M4L or equivalent. The microphone shall be a dynamic type with a uniform frequency response of 50-15,000 c.p.s. The microphone shall have an output level of -79 db. below

1 volt/dyne/cm² at low impedance. EIA sensitivity rating shall be -151 db. The microphone shall have a cardioid type pickup pattern with a rear response that is down typically 20 db. over the frequency range. The diaphragm shall be of "DYNAFLEX" plastic having very high impact strength and shall be free from the effects of temperature variations and humidity. Case finish of the microphone shall be of satin chrome. The microphone will mount on a stand having 5/8" -27 thread. The microphones shall have a maximum diameter of 1 1/4", a length of 6", and a weight of 8 oz., less cable.

INSTALLATION

The model M4L may be used with any amplifier having a low impedance input of 50 to 250 ohms. When long lines are used, care should be taken to see that the cable does not parallel A.C. power lines for long distances to avoid A.C. hum induction. The cable length is practically unlimited.



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SPECIFICATIONS

TYPE: Dynamic

IMPEDANCE: 200 ohms

OUTPUT LEVEL: Open Circuit Voltage: -81 db (0 db = 1 volt per microbar)

Power Level: -60 db (0 db = 1 milliwatt per 10 microbar)

EIA SENSITIVITY: -152.8 db

FREQUENCY RESPONSE: 100-8000 Hz

CABLE: 12" Retracted, 5' extended

CASE: Matching black & gray cycloc with grain finish



Model 450M

GENERAL DESCRIPTION

The model 450M is a professionally styled, low impedance balanced line dynamic microphone for paging applications requiring an extremely rugged hand-held microphone.

ARCHITECTS & ENGINEERS SPECIFICATIONS

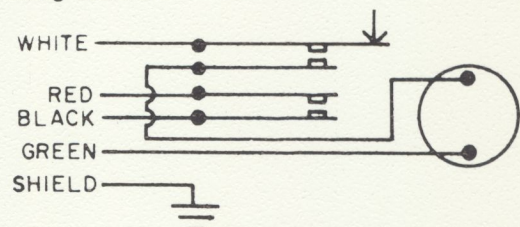
The microphone shall have a dynamic interior for smooth peak free response and trouble free performance. Voice coil impedance is 200 ohms for matching into low impedance input circuits. Frequency response is 100-8000 Hertz with an output level of -81 db. and shall utilize a leaf type switch.

The case shall be cycloc and should withstand the day to day abuse of hand held paging applications. The case shall fit easily into the hand and the switch lever should be easy to operate.

The coil cord shall be black, 4 conductor 2 shielded,

neoprene 12" retracted, 5 foot extended. This coil cord should have a spring type strain relief and should withstand frequent and constant extending without stretching or losing its life and should not be affected by cold weather.

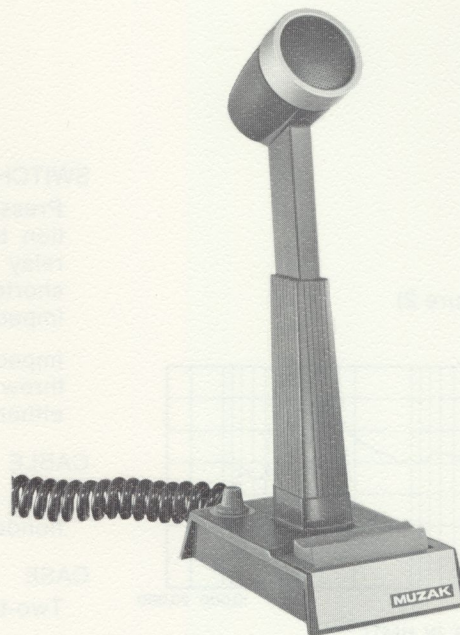
The microphone should be equipped with a hanger button and supplied with a standard dash board type mounting bracket.



WIRING DIAGRAM

FEATURES:

- Dual impedance (Low or High) with impedance switch for convenient changeover
- Finger-tip control bar (locking or non-locking action) to actuate microphone circuit and an external relay or control circuit
- Long-life switch to satisfy rigorous requirements of communications and paging systems
- Sturdy, high impact ARMO DUR base and microphone case
- Adjustable microphone height
- Dependability—under all operating conditions



Model CR51-450

GENERAL DESCRIPTION

The Model CR51-450 is a Controlled Magnetic microphone especially designed for high speech intelligibility and exceptional reliability for radio communications, paging, and dispatching systems. The microphone has a high output level, smooth response, and an omni-directional pickup characteristic.

PRESS-TO-TALK SWITCH OPERATION

The finger-tip control bar can be used as a locking or nonlocking switch. To use as a nonlocking switch, simply depress the control bar and release after transmission. To use as a locking switch, depress the control bar and pull it forward. To unlock the switch, move the bar back and release.

IMPEDANCE SELECTION

High or low impedance is selected by the switch located on the under side of the microphone base near the cable entry. The microphone is shipped with the switch in the "HI" position.

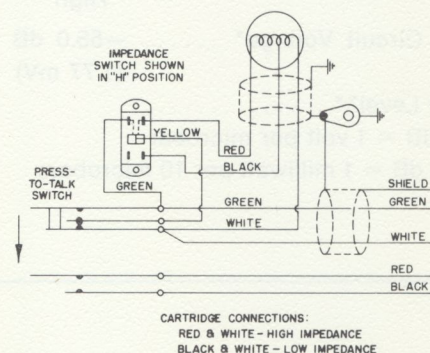
The low-impedance connection is recommended where long cable lengths are required or under conditions of severe hum disturbance. The permissible cable length is practically unlimited, since neither response nor level is appreciably affected. Shure Model A95 Series Line Matching Transformers are available for use in those cases where a low-impedance microphone line is desirable but the associated amplifier has a high-impedance input. These transformers provide a proper impedance match between a 25 to 200 ohm microphone line and a high-impedance input and are available with various input and output connectors.

CONNECTIONS

Figure 1 shows the internal wiring of the Model CR51-450 microphone.

For unbalanced high-impedance operation, with the Impedance Switch in the "HI" position (as shipped), the WHITE cable lead is the "hot" conductor for the microphone circuit; the GREEN cable lead and the shield are connected to the amplifier or chassis ground. The RED and BLACK leads control an external relay or switching circuit.

For balanced-line low-impedance operation, with the Impedance Switch in the "LO" position, the WHITE and GREEN cable leads are the "hot" conductors for the microphone circuit; the shield is connected to the amplifier or chassis ground. The RED and BLACK leads control an external relay or switching circuit.



INTERNAL CONNECTIONS

FIGURE 1

MUZAK CR51-450 PAGING AND DISPATCHING MICROPHONE

SPECIFICATIONS

TYPE

Controlled Magnetic

FREQUENCY RESPONSE

100 to 10,000 Hz (see Figure 2)

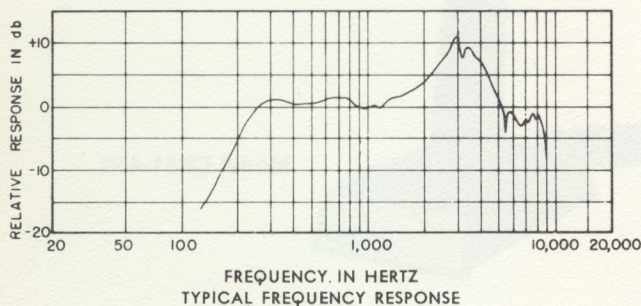


FIGURE 2

POLAR PATTERN

Omnidirectional

IMPEDANCE (at 1,000 Hz)

Dual. Microphone rating impedance is 150 ohms (200 ohms actual) and "High"

LOAD IMPEDANCE RANGE

	Minimum	Recommended
High Impedance	15 kilohms	100 kilohms
Low Impedance	150 ohms	1,000 ohms

OUTPUT LEVEL (at 1,000 Hz)

	Impedance	
	High	Low
Open Circuit Voltage*	-55.0 dB (1.77 mV)	-72.0 dB (.25 mV)
Power Level**		-51.0 dB

* dB = 1 volt per microbar

**0 dB = 1 milliwatt per 10 microbars

SWITCH

Press-to-Talk Switch—locking or nonlocking operation to actuate microphone circuit and an external relay or control circuit. Microphone circuit normally shorted in high impedance and normally open in low impedance position.

Impedance Selection Switch—double-pole double-throw slide switch in microphone base to provide either high- or low-impedance operation

CABLE

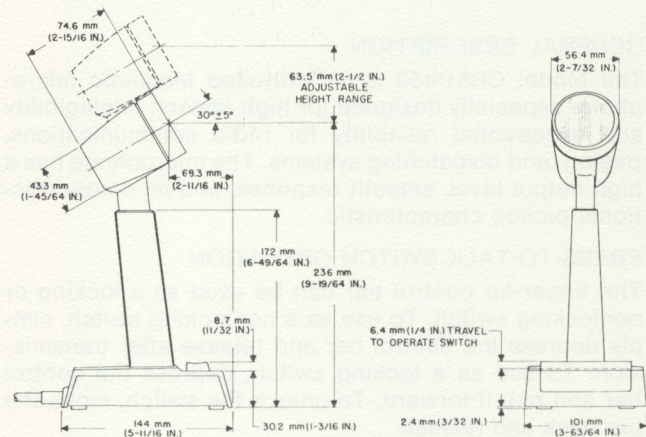
2.1m (7 ft) four-conductor, two conductors shielded, nondetachable

CASE

Two-tone gray ARMO DUR

DIMENSIONS

See Figure 3



OVERALL DIMENSIONS

FIGURE 3

NET WEIGHT

736 grams (1 5/8 lb)

SHIPPING WEIGHT

1020 grams (2 1/4 lb)

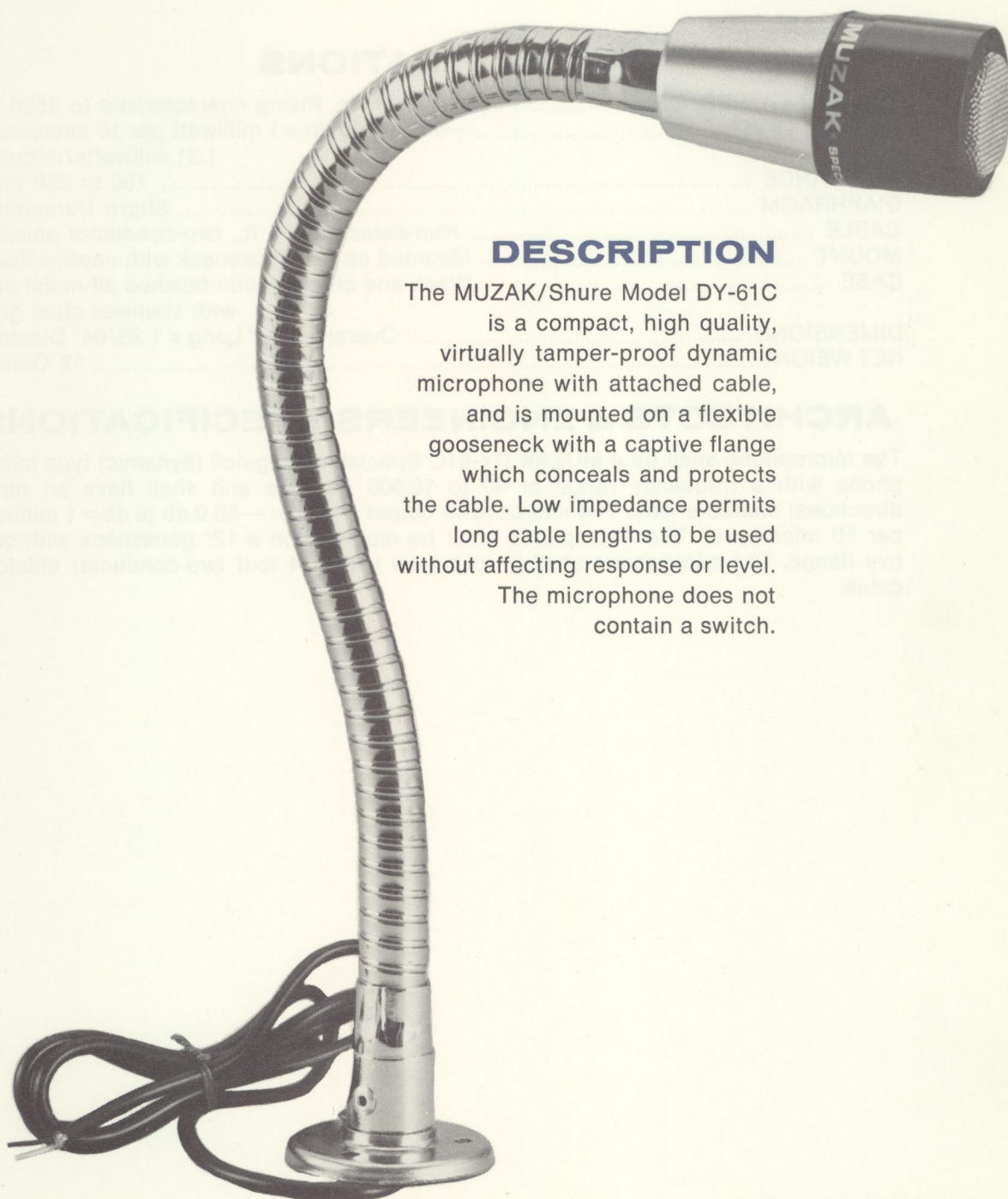
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DY-61C special dynamic microphone



DESCRIPTION

The MUZAK/Shure Model DY-61C is a compact, high quality, virtually tamper-proof dynamic microphone with attached cable, and is mounted on a flexible gooseneck with a captive flange which conceals and protects the cable. Low impedance permits long cable lengths to be used without affecting response or level.

The microphone does not contain a switch.

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SECTION V FILE D-8

SPECIFICATIONS

FREQUENCY RESPONSE 40 to 10,000 Hz. Rising characteristic to 4500 Hz.
OUTPUT LEVEL —56.0 db (0 db = 1 milliwatt per 10 microbars);
1.31 millivolts/microbar
IMPEDANCE 150 to 250 ohms
DIAPHRAGM Shure Duracoustic
CABLE Non-detachable 4 ft., two-conductor shielded
MOUNT Mounted on 12" Gooseneck with captive flange
CASE Black and chrome satin-finished all-metal case
with stainless steel grille
DIMENSIONS Overall: 14½" Long x 1 23/64" Diameter
NET WEIGHT 12 Ounces

ARCHITECTS & ENGINEERS SPECIFICATIONS

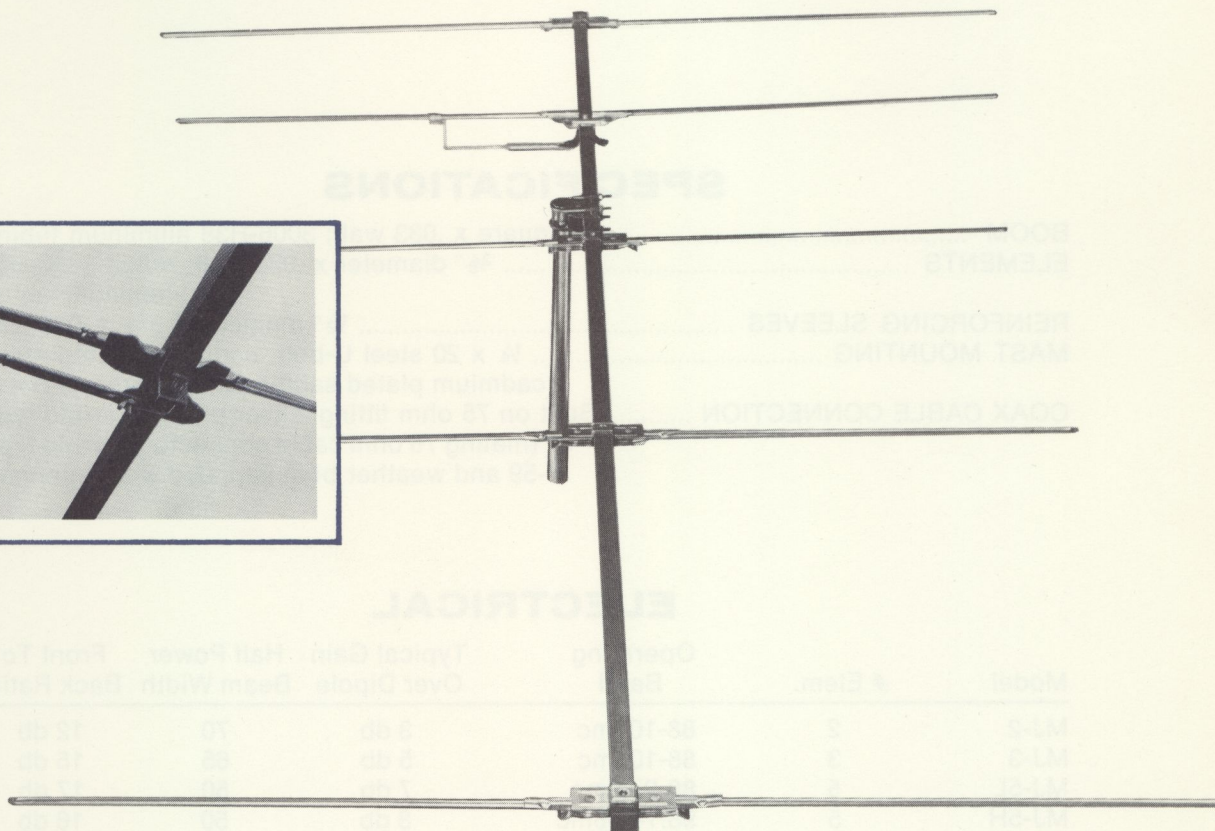
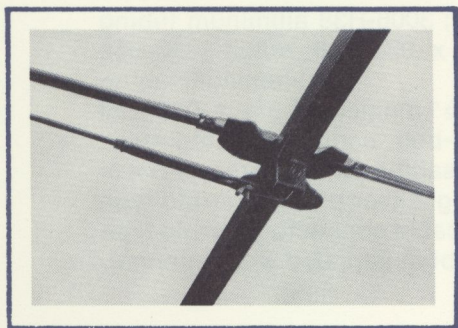
The microphone shall be a MUZAK DY-61C Special moving-coil (dynamic) type microphone with a frequency range of 40 to 10,000 Hz. The unit shall have an omnidirectional characteristic. The microphone output shall be: —56.0 db (0 db = 1 milliwatt per 10 microbars). The microphone shall be mounted on a 12" gooseneck with captive flange. The microphone shall be provided with a 4 foot two-conductor shielded cable.

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MUZAK® SPECIALISTS IN SOUND



universal antennas



DESCRIPTION

The MUZAK FM antennas are 75 ohm, gamma matched Yagi types especially designed to meet the requirements for good SCA performance at a reasonable cost.

These antennas are available in four basic types of two, three, five and ten elements. The two and three element antennas are designed for broadband operation over the entire FM band. The five and ten element antennas cover the FM band with two models of each, one for the upper half and one for the lower half, of the band. The gains over a dipole antenna range from 3 db for the two element to 9.5 db for the ten element antenna. The front to back ratio on all models is high enough to minimize interference pickup from the rear.

All antennas are of the collapsible types for easy installation. They have a built-on 75 ohm connector, silver plated, Jerrold type F-61 for good electrical contact.

Supplied with each antenna is a mating cable connector, Jerrold type F-59 and a weather boot for protection of the connectors against corrosion.

All antennas are sturdily constructed using a 1" square steel-hard aluminum tubing for the boom. All elements are equipped with reinforcing sleeves at the support ends for mechanical rigidity under high wind conditions. The anti-corrosion finish on all antennas guarantees a maintenance-free, weather-resistant installation with long service life.

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SECTION V FILE G-1

SPECIFICATIONS

BOOM	1" square x .033 wall; 3006-H38 aluminum tubing
ELEMENTS	$\frac{3}{8}$ " diameter x .032 wall; rolled 3006-H38 aluminum tubing
REINFORCING SLEEVES	$\frac{1}{2}$ " diameter x $3\frac{1}{2}$ " x .028 wall
MAST MOUNTING	$\frac{1}{4}$ " x 20 steel U-bolt, cadmium plated steel, cadmium plated saddle plate riveted to boom
COAX CABLE CONNECTION	Built on 75 ohm fitting, silver plated, Jerrold type F-61 (mating 75 ohm cable connector, Jerrold type F-59 and weather boot supplied with antenna).

ELECTRICAL

Model	# Elem.	Operating Band	Typical Gain Over Dipole	Half Power Beam Width	Front To Back Ratio
MJ-2	2	88-108mc	3 db	70	12 db
MJ-3	3	88-108mc	5 db	65	15 db
MJ-5L	5	88-97.9mc	7 db	50	17 db
MJ-5H	5	98.1-108mc	8 db	50	16 db
MJ-10L	10	88-97.9mc	9.5 db	50	16 db
MJ-10H	10	98.1-108mc	9.5 db	45	16 db

DIMENSIONS & WEIGHTS

Model	Elements	Boom	Weight (lbs.)
MJ-2	66"	21½"	2
MJ-3	66"	38½"	3
MJ-5L	66⅞"	89"	4
MJ-5H	61½"	88"	4
MJ-10L	66"	119"	7
MJ-10H	59¾"	117"	7

IMPEDANCE: ALL MODELS

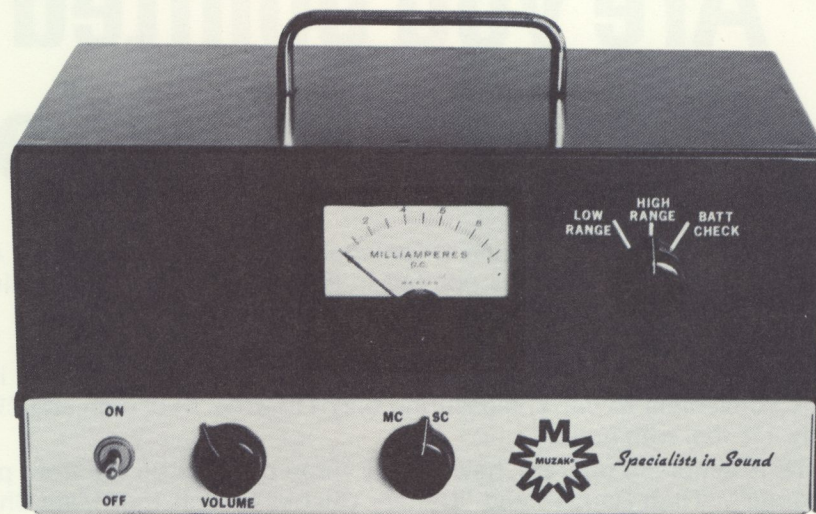
75 ohms nominal

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MTE-100 portable antenna orientation meter



DESCRIPTION

The MUZAK MTE-100 is a portable single channel relative field strength meter that has been designed for quick and easy roof top orientation of FM receiving antennas.

Main channel signal strength is indicated on a wide view meter located on the front panel. Audio quality is monitored through an earphone jack located on the rear panel. The audio output can be switched to either main or the sub-channel program by a front panel switch. The meter is used to read relative signal strength and battery voltage.

SPECIFICATIONS

FREQUENCY SENSITIVITY SELECTIVITY

MAIN CHANNEL

88 to 108 MC
1.5 uv for 30 db quieting
230 KC

SUB-CHANNEL

41 to 67 KC
6 uv for 30 db quieting
18KC

Crosstalk.....—50 db
Input Impedance.....72 Ohm
Input Connector.....F-61A
Mute.....Automatic
Power.....Eveready Type 763

Controls.....Sensitivity—Battery Check Switch
Main Channel—Sub-Channel Switch
Volume Control
Power Switch

Size.....5¼"H x 7½"D x 11"W
Finish.....Muzak Blue & White
Weight.....4½ Lbs.

MUZAK CORPORATION

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SECTION V FILE G-3

Are you pointed in the right direction?

The new MUZAK MTE-100 Portable Antenna Orientation Meter will give you the answer. It tells you, by visual indication, when your antenna is pointed in the right direction for maximum signal pick-up from your station.

- *The MUZAK MTE-100 is a truly portable instrument, operating from an internal battery supply. It is convenient to carry, measuring only 11" wide, 5¼" high and 7½" deep and weighing only 4½ lbs. with battery.
- *The MTE is simple to operate, having only three controls on the front panel. These are the "Low Range", "High Range" and "Battery Check" Switch, the "Main Channel", "Sub-Channel" Switch and the Volume Control. The front panel also contains the relative signal strength meter and the on-off switch. A standard antenna connector (F-61A) and the phone monitor jack (standard) are on the rear of the instrument.

Benefits of the MTE-100

- *Reduce antenna installation time.
- *Aids in the selection of the best antenna location.
- *Insures precise orientation for best possible signal.
- *Eliminates the need for inter-phones from roof to receiver location.
- *Completely self-contained—no dangling wires.
- *May be used as a demonstrator by connecting output to an amplifier system.

***With all these advantages you can't afford not
to consider this versatile unit.***

MUZAK® SPECIALISTS IN SOUND



volume control plates

TYPE A

Blass Plate with Black lettering for use with the MUZAK VC-27 volume control.

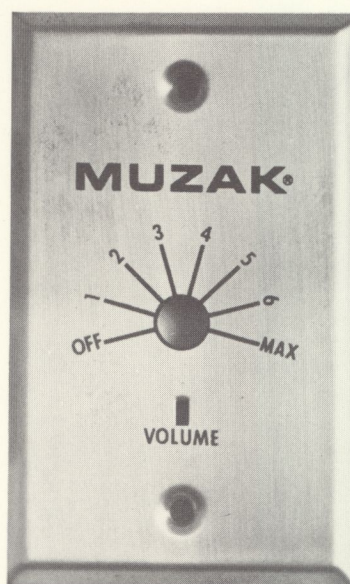
Size: Standard Wall Plate (Same as On VC-27)



TYPE B

Black Aluminum Plate with Gold lettering. Suitable for use with most standard volume controls.

Size: 1½" x 2 11/16"



TYPE C

Black Aluminum Plate with Silver lettering. Suitable for use with most standard volume controls.

Size: 1½" x 2 11/16"



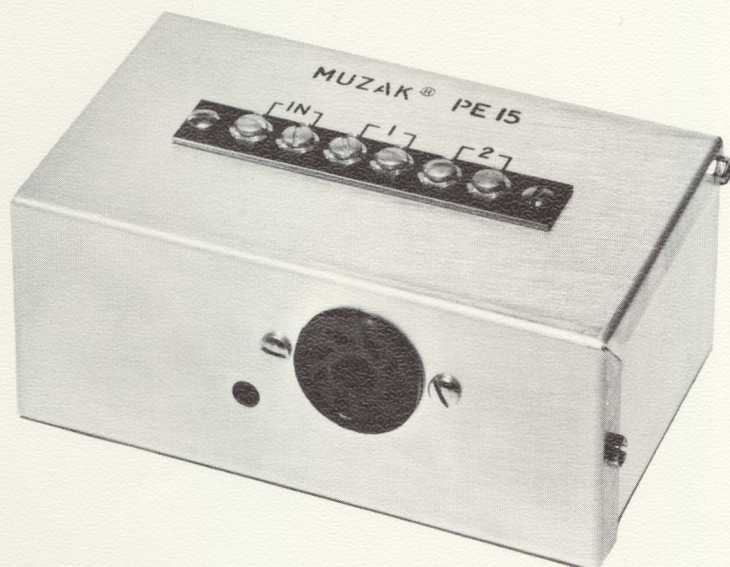
TYPE D

Black Aluminum Plate with Silver lettering. Used with VC-27 volume control when VC-27 is panel mounted.

Size: 2 1/8" x 2 3/4"

MUZAK®

MODEL PE-15 PROGRAM EXTRACTOR



GENERAL DESCRIPTION

The Muzak PE-15 was designed to provide Office and Industrial program scheduling at Muzak subscriber locations.

The PE-15 is a plug-in unit primarily designed to operate in conjunction with Muzak STR-100, STR-200 and STR-400 receivers. It may be employed on telephone lines when used with the Muzak power supply model PS-1.

The PE-15 performs alternate quarter hour switching operations by alternately sensing a 45 Hz tone at the beginning of the first and third groups. The 45 Hz tone is supplied on all standard Muzak program tapes and are recorded at a level approximately 10 dB below program for a duration of 3 seconds.

Since the PE-15 is synchronized by signals from the studio, its use is especially indicated in locations where power outages are frequent.

The PE-15 will also accept a DPDT, 24 volt D.C. plug-in relay to increase its flexibility in direct switching of loudspeaker lines. Both plug and relay socket on the unit are standard octal types. Connections to the relay contacts are made through a six screw terminal strip located on the top of the unit.

The PE-15 circuitry utilizes solid state devices in its three basic sections; active 45 Hz bandpass filter, uni-junction, resistance capacitance silence sense timer and FET audio switches. A zener diode is used to regulate voltage in the PE-15.

SPECIFICATIONS

INPUT IMPEDANCE: 2.0K OHMS
PROGRAM INPUT LEVEL: .5-.75 VRMS, Fixed
PROGRAM OUTPUT

LEVEL:15-.2 VRMS, Fixed
45Hz INPUT LEVEL:05-.15 VRMS, Adjustable

*OPERATING FREQUENCY: 45 Hz \pm 2%
*SILENCE SENSE DELAY: 10-50 SEC., Set At 20 SEC.
 \pm 20%

RELAY DRIVER CAPACITY: 60 MA. MAX.
OPERATING CURRENT: . 75 MA. MAX W/O Relay
ENCLOSURE MATERIAL: Aluminum (Clear Iridite)
DIMENSIONS: 5-5/16 x 3-3/16 x 2-3/16
WEIGHT: 10 oz.

ASSOCIATED
EQUIPMENT: Power Supply PS-1.
Plug-in Relay, DPDT,
24VDC, 400 Ohms or Higher

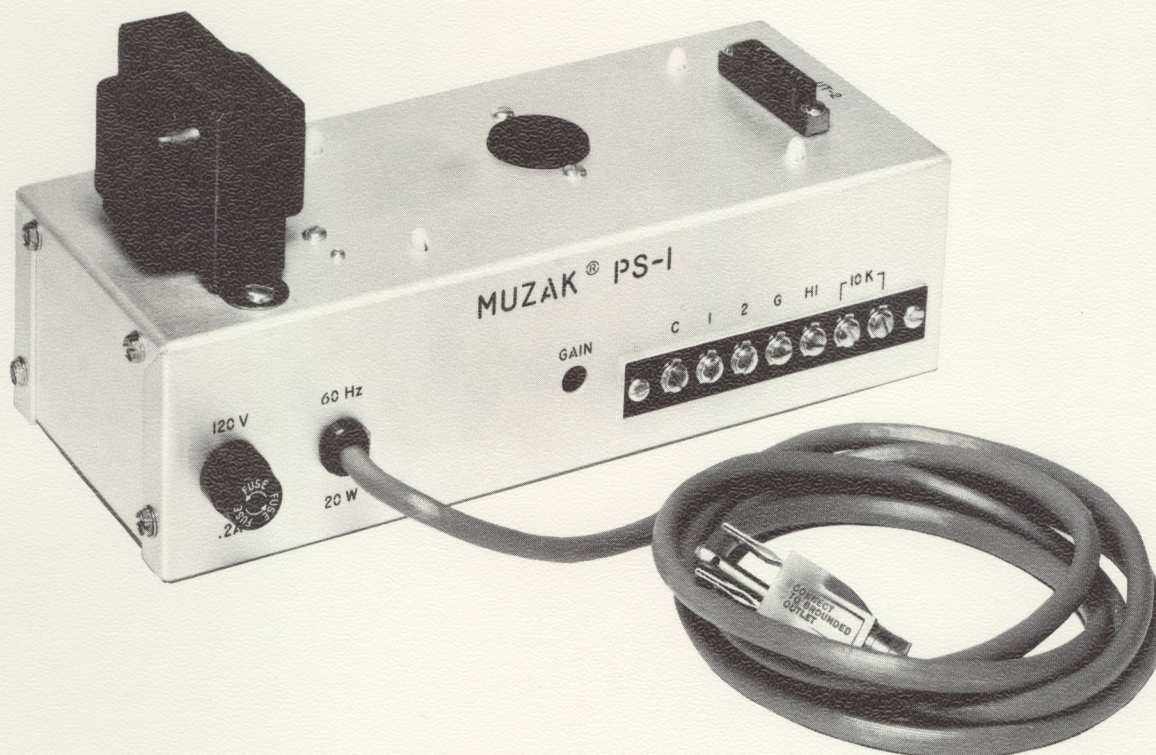
*Adjustable, Internally

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MUZAK®

MODEL PS-1 POWER SUPPLY



GENERAL DESCRIPTION

The Muzak PS-1 power supply is primarily designed to provide DC power and amplification for operation of the PE-15 program extractor when it is employed on telephone lines.

The PS-1 can also accommodate Muzak plug-in amplifiers such as the A-6 expanding their use as monitor amplifiers in racks and in situations where a limited number of speakers are to be driven within the 5 watt range.

The PS-1 is equipped with a socket to accept an input transformer (UT-3) for balanced line operation when required. A terminal strip is provided for input and output connections. Gain of the PS-1 is adjustable by means of an internal screwdriver control.

The unit is 9½" wide, 3½" deep and 4½" high. The chassis is made of etched aluminum with clear iridite finish.

SPECIFICATIONS

VOLTAGE GAIN:	40 adjustable
BRIDGING GAIN:	32 dB
FREQUENCY RESPONSE:	40 Hz — 10 Hz
OUTPUT:	5.0 Volts @ 2K Ohms
DISTORTION, THD:	Less than 1.0%, 40-10KHz
HUM AND NOISE:	65 dB below 5.0 volts
INPUT IMPEDANCE:	27K Ohms
OUTPUT IMPEDANCE:	300 Ohms
A.C. POWER:	20 Watts @ 120 V, 60 Hz
DIMENSIONS:	9½"W, 3½"D, 4½"H
MATERIAL AND FINISH:	Aluminum, etched and clear iridite
SHIPPING WEIGHT:	3 lbs.
OPTIONAL ACCESSORIES:	Plug-in Line Transformer, UT-3

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MUZAK®

MODEL J-4847 PROGRAMMER



GENERAL DESCRIPTION

The Muzak model J-4847 Programmer is an electro-mechanical timer designed for use at subscriber locations to provide Office and Industrial Muzak programming.

The J-4847 consists of a synchronous recycling timer and DPDT relay providing alternate 15 minutes on and 15 minutes off scheduling of the Muzak program.

The J-4847 is housed in a steel case finished in grey hammertone enamel. An aluminum escutcheon plate with 30 minute dial is riveted on to the front of the case. A time indicating pointer and knob for setting is provided over the dial. A six terminal barrier strip on the right side of the case is provided for connection of program source and two alternating outputs.

The unit is 3½" wide, 5" high and 3" deep exclusive of timing knob which extends approximately ⅝".

The unit is designed for wall mounting by use of four holes in the rear half of the case.

SPECIFICATIONS:

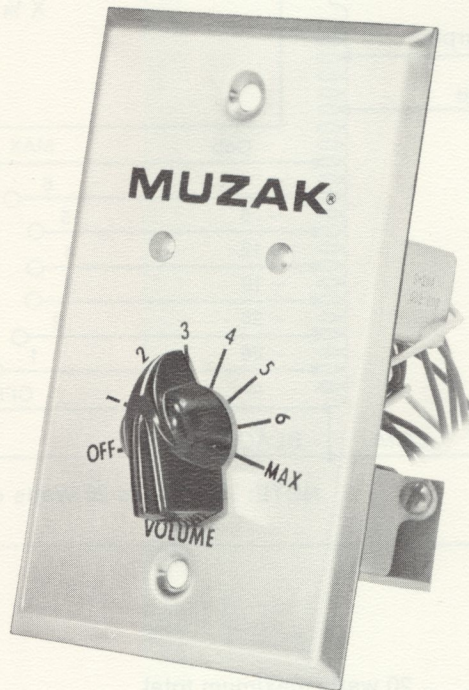
TIMER:	Synchronous, recycling, single cam, single switch, 1 revolution per 30 minutes
RELAY:	DPDT, 115 V, 60 Hz, 5A. Contacts
SWITCHING:	15 min. on, 15 min. off @ 0.5% accuracy
CONNECTIONS:	Barrier block, 6 terminals
SIZE:	3½" W, 5" H, 3" D
MATERIAL:	Drawn steel case
FINISH:	Grey hammertone enamel
MOUNTING:	4 Holes, 2⅜" x 3⅞" centers
POWER:	120 Volt, 60 Hz.
WEIGHT:	2 lbs.

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FEATURES:

- Constant Page Level
- Minimum Power Loss
- Noiseless Operation
- Definite Volume Stops
- Compact
- Mounting Ease



GENERAL DESCRIPTION

The Muzak VC-29 Speaker Volume Control is a tapped autotransformer type, designed to control audio power into single or multiple loud speakers operating on 70 volt systems.

The VC-29 includes a single pole double throw relay that provides for a constant paging level regardless of volume setting. With this arrangement the problem of insufficient paging level due to a low setting of the volume control or at times a complete shut off is avoided. The relay allows a complete by-pass of the volume control during the page operation.

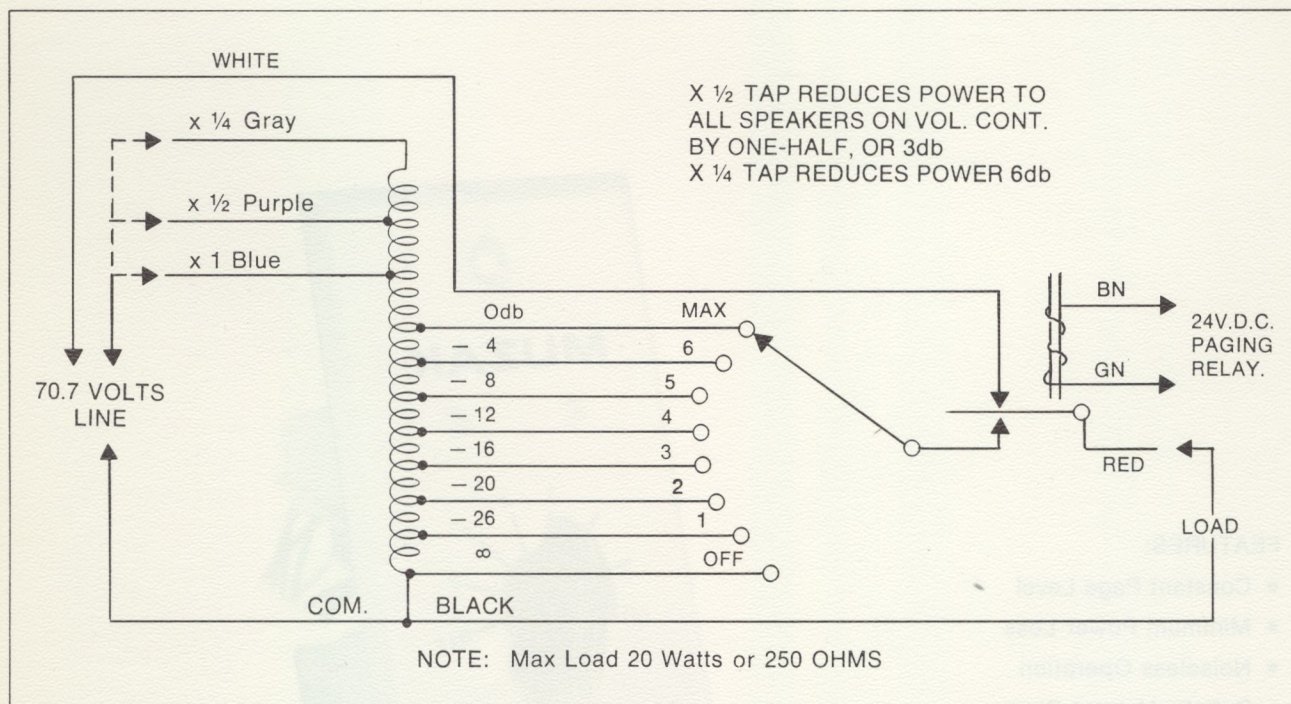
The VC-29 is rated at 20 watts, with a level control range of 26 decibels in seven steps. For increased flexibility, two additional input taps provide fixed power level reductions of three and six decibels.

The VC-29, like the VC-27 is assembled on a brushed steel, single gang electrical plate. The markings are baked on black enamel.

The control will mount in either a flush or surfaced mounted single gang electrical box having a minimum depth of 2¼ inches and minimum width of 2".

Connections are made by means of color coded leads.

MUZAK MODEL VC-29 VOLUME CONTROL



SPECIFICATIONS

POWER CAPACITY 20 watts maximum total

FREQUENCY RESPONSE . . ± 1.5 db. 50-15,000 cycles

MAXIMUM LOAD 250 ohms

MAXIMUM ATTENUATION . 26 db. (29 db. using x 1/2 tap)
(32 db. using x 1/4 tap)

NUMBER OF STEPS seven, plus "off"

IMPEDANCE

UNLOADED OR OFF 20,000 ohms at 50 cycles

MAXIMUM

OPERATING VOLTAGE . . . 70.7 volts (for use on 70 volt distribution systems)

INSTALLATION Mounts in single gang box, flush or surface mounted with thin dimensions of 2 1/4 inches deep & 2 inches wide.

RELAY 24 v.d.c. single pole, double throw. Coil, 6500 Ohms $\pm 10\%$.

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FEATURES

- Impedance Flexibility
- Definite Volume Level Steps
- Noiseless Operation
- Minimum Power Loss

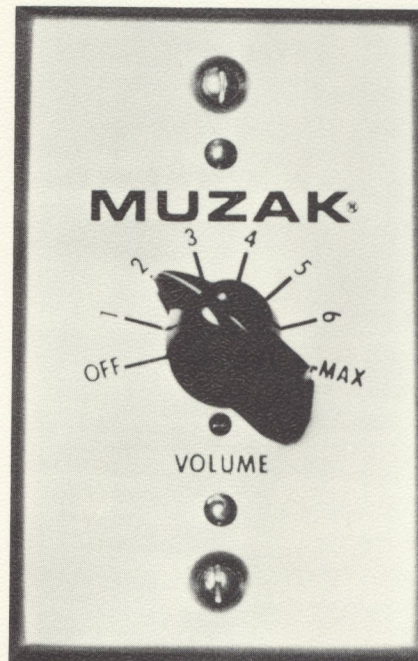
GENERAL DESCRIPTION

The Muzak VC-27A Speaker Volume Control is a tapped autotransformer type especially designed for controlling individual as well as groups of loudspeakers, operating from 70 volt sound system lines.

The VC-27A's inherent flexibility in load capability makes it possible to replace numerous types of wire wound and composition type controls having various impedances. It also overcomes the disadvantages of the other controls such as: excessive power loss, burn-out and noisy operation.

The VC-27A is a completely assembled unit, ready for connection into the speaker circuit by any three of its five color coded leads, depending on the operating level of the speakers.

It consists of a tapped transformer, tap selector switch and pointed knob mounted on a single gang brushed steel plate. The markings are by baked on enamel paint. The VC-27A will mount on either a flush or surface mounted single gang and standard switch box having a minimum depth of 2¼ inches.

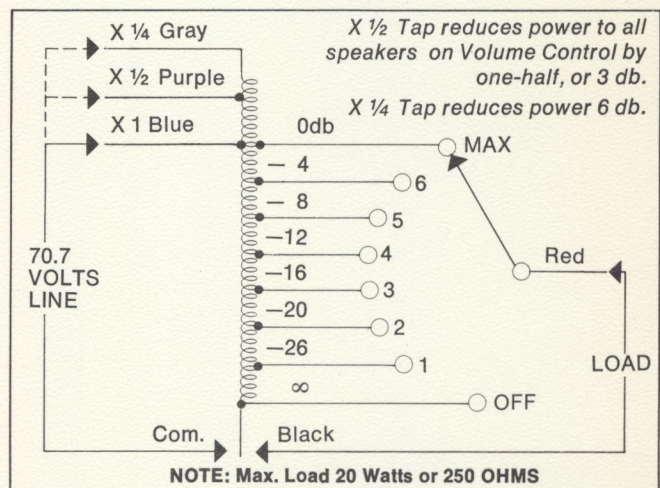


Model VC-27A

SPECIFICATIONS

Power Capacity20 watts maximum total
 Maximum Load 250 ohms
 Frequency Response ± 1.5 db. 50-15,000 cycles
 Maximum Attenuation.....26 db. (29 db. using x 1/2 tap)
 (32 db. using x 1/4 tap)
 Number of Steps seven, plus "off"
 Impedance, unloaded20,000 ohms at 50 cycles
 Maximum Operating Voltage70.7 volts (for use on
 70 volt distribution systems)
 Installation Mounts in standard single gang box, flush
 or surface mounted. 2¼ inches deep.
 Weight Approx. ¾ lb.

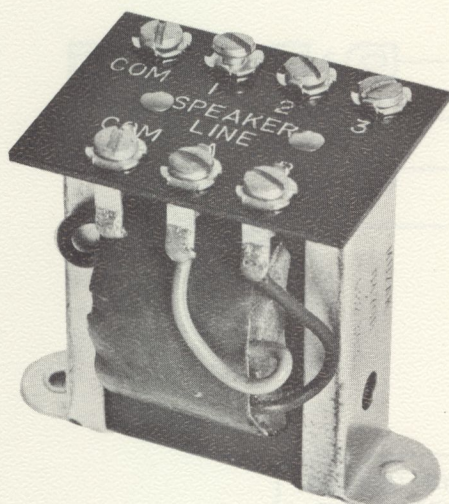
VC-27A



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U-470/U-704 transformers

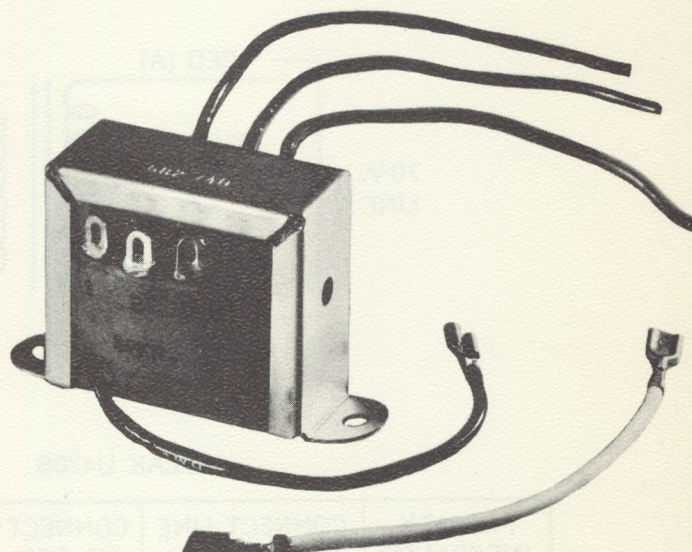


DESCRIPTION

The MUZAK U470B loudspeaker matching transformer is designed to provide different power levels from a 70 Volt line to a loudspeaker, by use of a tapped primary and secondary. Depending on the taps used, the U470B will supply $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1, 2 and 4 watts to an 8 ohm loudspeaker. These taps are available on a screw type terminal board which is mounted on the top of the transformer.

SPECIFICATIONS

Primary	1,250 to 40,000 ohms
Secondary	8 ohm load
Frequency Response	50 to 15,000 CPS
Power Capacity	4 watts (max.)
Mounting Dimensions	2 $\frac{3}{8}$ " on centers
Weight	15 ounces



DESCRIPTION

The MUZAK U-704 loudspeaker matching transformer is designed to provide six different power levels from a 70 Volt line to a loudspeaker, by the use of a tapped primary and secondary. Depending on the taps used, the U-704 will supply $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1, 2 and 4 watts to an 8 ohm loudspeaker. These taps are available by three flexible (12 in.) leads on the primary and push-on lugs on the secondary.

SPECIFICATIONS

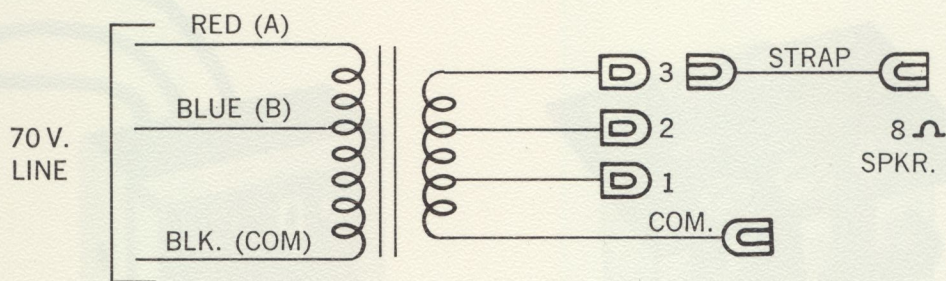
Primary	1,250 to 40,000 ohms
Secondary	8 ohm load
Frequency Response	50 to 15,000 CPS
Power Capacity	4 watts (max.)
Mounting Dimensions	2 $\frac{3}{8}$ " on centers

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SECTION V FILE I-1

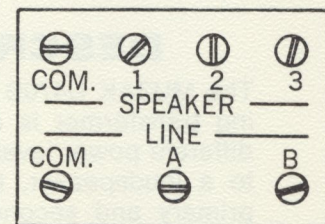
MUZAK U-704

PRIMARY IMPEDANCE	CONNECT LINE TO COM. AND:	CONNECT SPKR. TO COM. AND:	WATTS FROM 70V. LINE
40,000	RED (A)	1	$\frac{1}{8}$
20,000	BLUE (B)	1	$\frac{1}{4}$
10,000	RED (A)	2	$\frac{1}{2}$
5,000	BLUE (B)	2	1
2,500	RED (A)	3	2
1,250	BLUE (B)	3	4

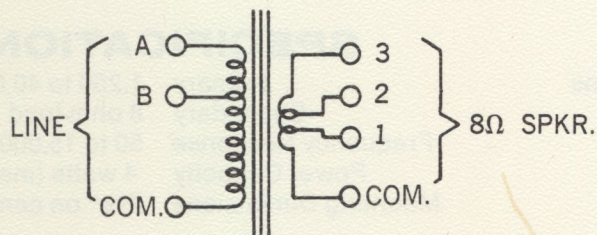


MUZAK U470B

PRIMARY IMPEDANCE	CONNECT LINE TO COM. AND:	CONNECT SPKR. TO COM. AND:	WATTS FROM 70 v. LINE
40,000	A	1	$\frac{1}{8}$
20,000	B	1	$\frac{1}{4}$
10,000	A	2	$\frac{1}{2}$
5,000	B	2	1
2,500	A	3	2
1,250	B	3	4



TERMINAL BOARD



SCHEMATIC

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MUZAK®

MODELS MCR-1 & MCP-1 MUZACOM™



FEATURES:

- Up to 40 scheduled messages
- Built in interval timer
- Uses standard tape cassette
- Solid state circuitry
- External relay control
- Automatic microphone level control
- Record/Play capability — Model MCR-1
- Play back only — Model MCP-1
- Locking face cover (optional)

GENERAL DESCRIPTION:

The Muzacom model MCR-1 is a recording and playback message injector capable of accommodating up to 40 serially selectable messages on each side of a standard cassette. The recording and playback process is based on a four track format using the right channels for voice and the left channels for control tones, with the ability to record on both sides of the cassette tape. The MCR-1 is equipped with 40 message select switches to allow playing or skipping any of the up to 40 messages as required.

The MCR-1 is capable of recording, using any low impedance microphone that has normally open switches for the voice and relay circuits. The recording section has automatic volume control circuitry.

The MCR-1 is easily connected between the Muzak sources and the power amplifier. When it cycles on playback, it will interrupt the Muzak program and insert the selected message. A built in interval timer provides an adjustable timing range of 3 to 60 minutes between messages. Provision has been made for activation of the unit in the play mode by an optional silence sensor allowing an inserted message at the end of each Muzak

quarter-hour group. Sockets for plug-in transformers such as the Muzak UT-3 have been provided in both the Muzak input and low level output to allow balanced line operation when required. The MCR-1 is also equipped with a relay that provides a closure when it is playing, to activate external relays for operational flexibility in various applications.

The MCR-1 cassette tape deck is comprised of 2 torque motors, 1 capstan drive motor and 1 capstan pressure roller and head assembly engaging motor. These motors are all D.C. types. The tape speed is $1\frac{7}{8}$ I.P.S., $\pm 2\%$. The weighted flutter is less than 0.25% RMS. The unit will operate from 117 volt, 50 or 60 Hz power lines and draw approximately 30 watts of power. The unit has a durable black vinyl finish on its cabinet with brushed aluminum polycarbonate plastic finish for the front panel. The front panel controls and switches can be made inaccessible by means of an optional locking front cover.

The Muzacom model MCP-1 is similar to the model MCR-1 in all respects except that it does not have the recording capability and is intended for playback only.

MUZACOM™
MODELS MCR-1 & MCP-1

TECHNICAL SPECIFICATIONS:

RECORD MCR-1 ONLY.

INPUT IMPEDANCE: Low Z, 50-200 OHMS

INPUT SENSITIVITY: 0.5 MV

LEVEL ADJUSTMENT: .. Automatic

FREQUENCY RESPONSE: 100 Hz. to 4500 — right channel.

CONTROL TONE

FREQUENCY: 200 Hz., applied to left channel.

MICROPHONE INPUT: .. Standard ¼" phone jack, 3 circuit. Sleeve, common; tip, voice; ring, control. Use with any low impedance microphone with normally open switches for voice and control circuits.

PLAYBACK, MCR-1 & MCP-1

TAPE SPEED: 1½ IPS ± 2%

FREQUENCY RESPONSE,
MESSAGE CHANNEL: ... 100 Hz to 4,000 Hz

FREQUENCY RESPONSE,
MUSIC CHANNEL: 50 Hz to 8,000 Hz

MUSIC INPUT: 0.7V RMS nominal, 50 K OHMS unbalanced. Balanced with optional UT-3 transformer.

OUTPUT, HIGH LEVEL: .. 0 — 2.0 VRMS, Adjustable

OUTPUT IMPEDANCE

HIGH LEVEL: 100 OHMS

OUTPUT, LOW LEVEL: .. 0-1- MV. Adjustable

OUTPUT IMPEDANCE

LOW LEVEL: 150 OHMS

DISTORTION, THD: Less than 2.0%

FLUTTER, WEIGHTED: .. Less than 0.25% RMS

SIGNAL TO NOISE

RATIO: 50 db, Nominal

CONTROL TONE

FREQUENCY: 200 Hz

EXTERNAL RELAY

CONTROL: Form "A" 50 MA, 24V, MAX.

MESSAGE CAPACITY: .. 40 messages on each side of cassette any length between 7 seconds and up, depending on cassette length and number of messages.

INTER-MESSAGE

INTERVAL: Adjustable, 3 to 60 minutes

CASSETTE TYPE: Philips

POWER: 117 VAC, 50 or 60 Hz, 30 Watts.

SHIPPING WEIGHT: 20 LBS.

FINISH: Black vinyl over cabinet and brushed aluminum polycarbonate plastic over the front panel.

SIZE: 16¾" x 8¼" x 9"

OPTIONAL

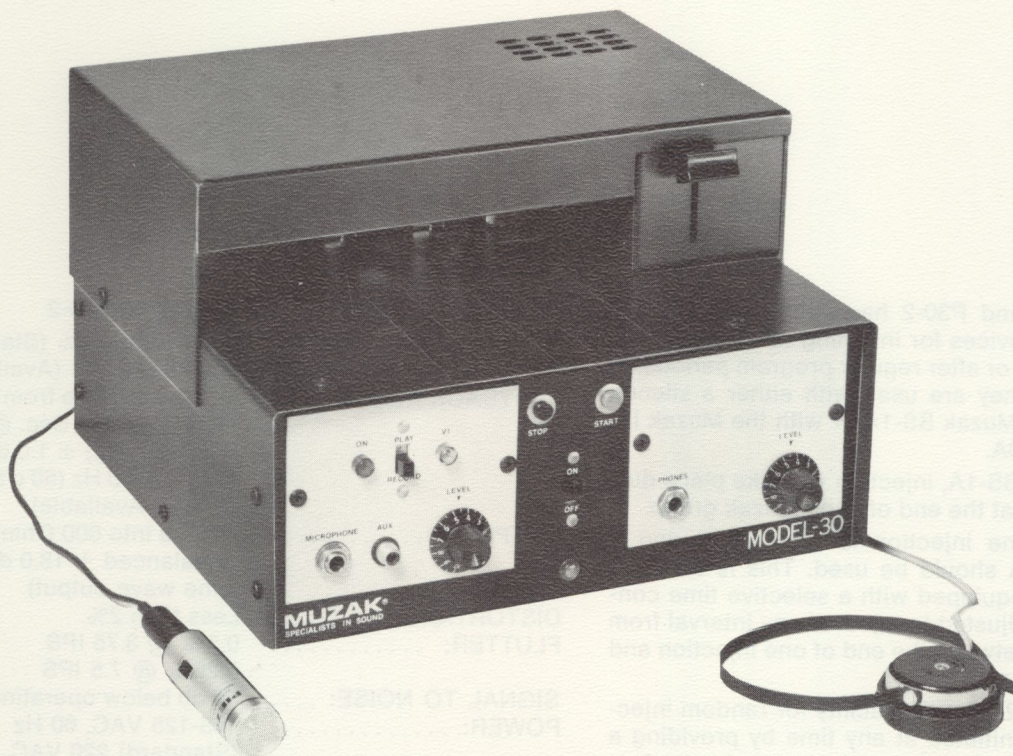
ACCESSORIES: Headphone 2000 OHMS, with miniature plug.
Plug-in transformer, UT-3.
Silence sensor, SS-3.
Locking front cover.

MUZAK

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MUZAK®

MODEL M30-2 & P30-2 MESSAGE INJECTOR



GENERAL DESCRIPTION

The Muzak model M30-2 is a combination record and playback machine designed for Muzak systems or other sound systems, to inject either messages or specialty music at subscriber locations.

The M30-2 employs the modern concept of modular construction which provides a simple means for producing two units in the same housing — a straight playback machine (model P30-2), utilizing a playback module, or a record/playback unit using both record and playback modules.

Both the M30-2 and P30-2 will accept either the type A (up to 300 ft.) or type B (up to 600 ft.) standard NAB cartridges, providing playing time of up to 15 and 30 minutes respectively at the standard 3.75 IPS speed.

When installed in a Muzak system the M30-2 or P30-2 is automatically connected to the Muzak amplifier each time it is started. After the injected message is completed and the machine stops, it switches the Muzak amplifier back to the Muzak program line. The cueing function of the machine is performed automatically upon its sensing a 1000 Hz tone burst which is recorded on the control track preceding each recorded announcement.

The circuitry of the M30-2 and P30-2 is solid state throughout and has been designed to provide utility and reliable long life performance.

FEATURES

- Voice—Music Equalization Switch
- Audition Headphone Jack
- Audition Volume Control
- Start-Stop Push Buttons
- Remote Start Facility
- Receptacle for Electronic Timer
- Heavy Duty Induction Motor
- Plug-In Playback Module
- Plug-In Record Module
- Rear Mounted Output Level Control
- Program Switching Relay
- Closure for External Relay
- Record Level Control Volume Indicator
- Function Indicating Lights
- Monitor While Recording
- Separate Record & Playback Heads

MUZAK M30-2 & P30-2 MESSAGE INJECTOR

APPLICATION:

The Muzak M30-2 and P30-2 have been designed to serve as injection devices for inserting announcements or special music into or after regular program periods. In these applications they are used with either a silence sensor, such as the Muzak SS-1A or with the Muzak Interval Timer, MIT-110A.

When used with the SS-1A, injection will take place during the silent period at the end of each Muzak group.

When more than one injection is required during a group, the MIT-110A should be used. This is an electronic timer that is equipped with a selective time control which may be adjusted to inject at any interval from one to ten minutes between the end of one injection and the beginning of the next.

The M30-2 and P30-2 have the facility for random injection which may be initiated at any time by providing a contact closure from any external device such as a door switch, floor mat switch, photo electric device, etc. Terminals are provided on the rear of the unit for this use.

The transfer from the Muzak program to the injected program and vice versa, is done automatically by a transfer relay. This action results in muting the Muzak program while in operation. However, it is also possible to have Muzak playing under the injected message by the addition of an external resistor.

SPECIFICATIONS

RECORD AND PLAY BACK M30-2 AND P30-2

TAPE SPEED: 3.75 IPS \pm 2.0% (Standard)
7.5 IPS \pm 2.0% (Available)

PLAYBACK RESPONSE: + 1.0 db, -3 db from 50 to 7500 Hz (200 μ Sec. @ 3.75 IPS Standard) \pm 1.0 db from 50 to 10,000 Hz (50 μ Sec. @ 7.5 IPS, Available)

OUTPUT: + 8 Vu into 600 Ohms, Unbalanced + 18.0 dbm (sine wave output)

DISTORTION: Less than 2%

FLUTTER: 0.3% @ 3.75 IPS

0.25% @ 7.5 IPS

SIGNAL TO NOISE: 50 db below operating level

POWER: 105-125 VAC, 60 Hz (Standard) 220 VAC, 50 Hz (Available)

MOTOR: Heavy Duty Induction

CARTRIDGES: NAB types A & B (300' & 600')

SIZE, WEIGHT, FINISH : 7" H x 11 1/4" W x 11 1/2" D
14 Lbs.

ACCESSORIES: Blue & Off White Epoxy Muzak Headphone (600 Ohms) Supplied
Muzak Interval Timer (MIT-110 Optional)
Muzak Silence Sensor (SS-1A Optional)
Muzak Bulk Eraser (Optional)

RECORD M30-2 ONLY

MICROPHONE INPUT: .. 150 Ohms (Balanced)
0.3 Mv. Sensitivity

AUXILIARY RECORD

INPUT: 50K Ohms
0.05 Volts Sensitivity

VOLUME INDICATOR: .. Light

CUE TONE: 1000 Hz (Stop Function)

ACCESSORIES: Muzak Lo-Z Microphone Supplied

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MODEL SS-1A SILENCE SENSOR MODEL MIT-110A INTERVAL TIMER

(ACCESSORIES FOR M30-2 & P30-2)



GENERAL DESCRIPTION MODEL SS-1A

The Silence Sensor SS-1A is employed where the M-30/P30 is used to inject an announcement or special selection at the end of a standard MUZAK group. The SS-1A starts the M-30/P-30 after it senses a pre-determined duration of silence on the MUZAK line.

The SS-1A operating power is supplied by the M-30/P-30. Screw terminals are provided for connection to the MUZAK line. It is equipped with a socket to accept an input transformer for those cases where isolation is required.

The sensitivity and time delay are adjustable to meet field requirements. Test points are provided for monitoring, adjustments, and maintenance. The time delay is factory adjusted for 20 seconds nominal.

SPECIFICATIONS

INPUT IMPEDANCE:	... 50K Ohms, 10K Ohms with optional plug-in transformer
SENSITIVITY (Sine Wave):	25 MV (−30 dbm @ 600 Ohms) @ 1 KHz
BANDWIDTH @ 3 db:	... 50 Hz to 15 KHz
TIME DELAY:	Adjustable 10-30 seconds ± 20%. Set for 20 second ± 10%
HUM AND NOISE:	... Less than 0.01 VDC at TP-1
OPERATING POWER:	... Supplied by M-30/P-30
LOAD CURRENT:	... 0.3A between terminals 1 & 3
TEMPERATURE:	... −25°C to +50°C
SIZE:	... 5½" L, 3¾" W, 3" H
FINISH:	... Muzak Blue
WEIGHT:	... 9½ oz.
OPTIONAL ACCESSORY:	Line Transformer, UT-3

GENERAL DESCRIPTION MIT-110A

The MUZAK Interval Timer MIT-110A was designed specifically for use with the M-30/P-30 Special Effects Programmer. It is used in those applications where it is required to start the M-30/P-30 periodically after an elapsed time, which is adjustable from 1 minute to 10 minutes. The selected time controls the interval of time from the end of an announcement when the machine stops, to the beginning of the next announcement.

The MIT-110A is an all electronic device, using resistance capacitance timing, in conjunction with a programmable unijunction transistor.

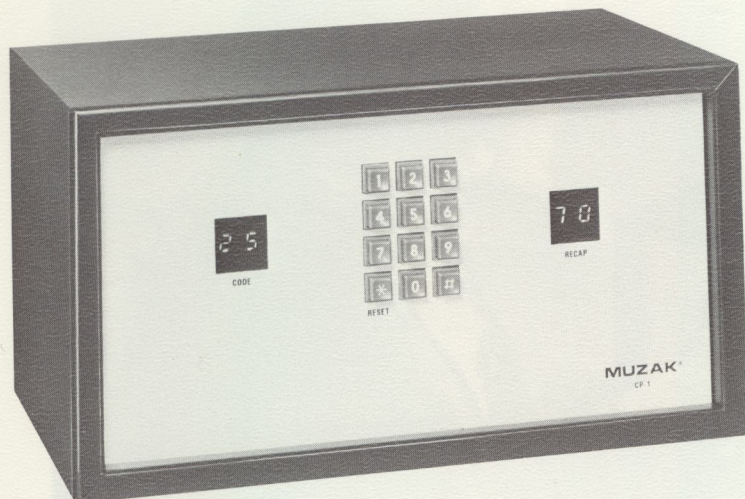
The MIT-110A receives its operating power from the M-30/P-30 by means of its connecting cable and plug.

SPECIFICATIONS

TIMING RANGE:	Adjustable 1-10 minutes
TIMING ACCURACY:	... ± 10%
LOAD CURRENT:	... 0.3A max. between terminals 1 & 3
OPERATING POWER:	... Supplied by M-30/P-30
OPERATING AMBIENT TEMPERATURE:	... −25°C to 50°C
SIZE:	... 3¼" L, 2" W, 1¾" H
FINISH:	... Muzak Blue
WEIGHT:	... 4½ oz.

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FEATURES:

- Solid State
- Push Button Actuated
- Compact
- IC Logic
- Code Readout
- Simple to Operate

GENERAL DESCRIPTION:

The Muzak CP-1A Muzachime unit is an all electronic solid state push button actuated tone paging control unit designed to operate in conjunction with any sound system.

The CP-1A will produce single or dual digit codes in pleasing tones throughout the sound system, in accordance with the numbers selected. The unit has a code capacity of 72 codes; 8 single and 64 two digit codes, using numerals 0 thru 8.

The paging code is repeated as desired by selecting the desired number after the code numbers. The CP-1A has two read-out windows; one indicates the one or two digit page code and the other indicates the number of repeats (up to nine), and the repeat status of the page. The last code dialed remains on display until a new code is selected, at which time, the unit automatically resets. Codes may be terminated before the number of repeats is reached, by the reset button on the dial.

The unit has an internally adjustable tone generator operating around 800Hz with an output of 0.5 volt RMS into a 5,000 ohm load.

The CP-1A is capable of remote control from the "in-house" telephone system by the addition of an optional rotary dial decoder Model DAR-1 or touch tone decoder Model DAT-1 depending on the system used.

The unit is also capable of operating an external relay for interfacing with electro-mechanical chime systems or other electronic chime systems.

The CP-1A is housed in a heavy gauge steel cabinet finished with Muzak blue and white epoxy paint. The unit is

suitable for shelf or table mounting. It is 13" wide, 7" high and 8" deep. It operates from 115 volt 50-60 Hz power lines, and is protected by a replaceable fuse.

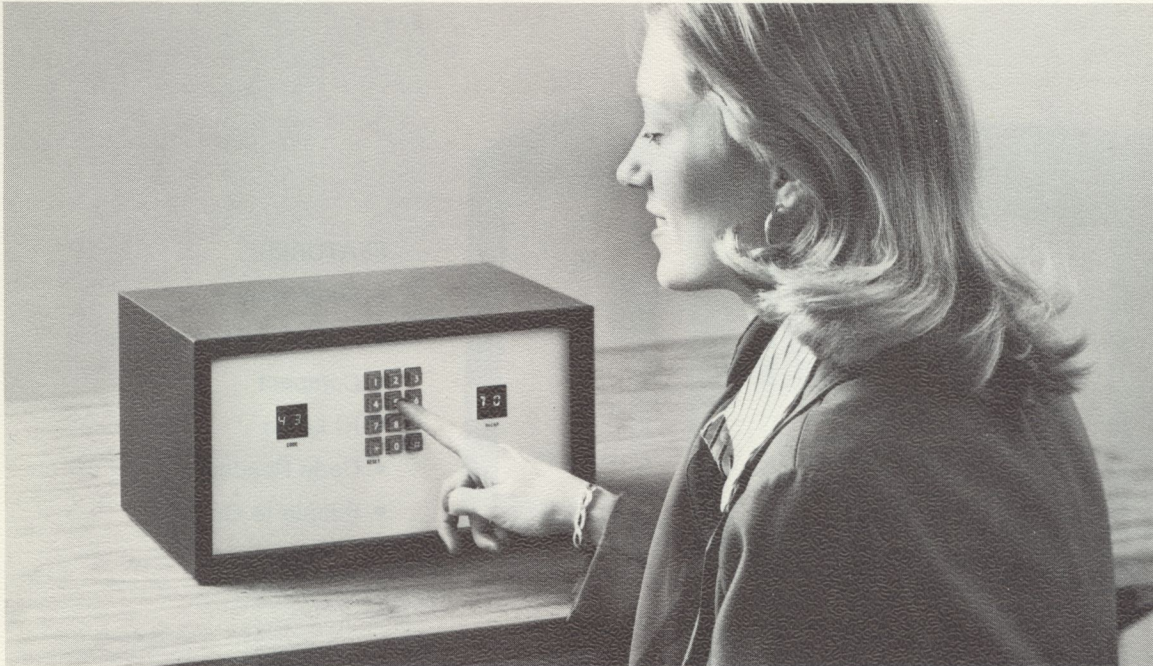
ARCHITECTS' & ENGINEERS' SPECIFICATIONS

The chime paging unit shall be the Muzak model CP-1A or equivalent. It shall be an all electronic, solid state, push button dial actuated unit. It shall not have any mechanical operating parts except for the push button dial. The unit shall produce on its output, single or dual digit tone codes using numerals one through eight and provide a total of 72 codes. It shall be able to repeat the code selected from one to nine times, according to the number selected on the dial. The unit shall have two readout windows to indicate the code dialed, the number of repeats, and the number indicating the status of the repeat cycles.

The first two digits dialed shall set the chime code memory to transmit tones according to the dialed number. The third digit dialed shall set the repeat sequence for the number of code cycles to be transmitted, and simultaneously start the code sequence. The unit shall have a tone that is internally adjustable around 800 Hz. Its output shall be at least 0.5 volts RMS into 5,000 ohms. The unit shall have means for controlling an external relay, in accordance with the code, with current capacity of 50 MA.

The unit shall be adaptable for remote control from the "in house" telephone system by means of an optional adapter. The unit shall be housed in a heavy gauge steel cabinet designed for table or shelf mounting. It shall operate from 115 volts, 50-60 Hz power line and protected by a replaceable fuse.

MUZACHIME CP-1A



SPECIFICATIONS:

FREQUENCY OF TONE: . . 800Hz, Internally Adjustable.

OUTPUT LEVEL: 0.5v RMS into 5K Ohms,
fixed.

OUTPUT CONNECTION: . . Standard phono pin jack.

EXTERNAL RELAY

CAPACITY: Open collector, 50 M.A. @
Z4VDC max.

RELAY CONNECTION: . . . Standard 1/4" phone jack.

POWER REQUIREMENT: . . 115 v. 50-60 Hz, 30 watts
Max.

SIZE: 13" w, 7" h, 8" d.

CABINET MATERIAL

AND FINISH: Steel with Muzak blue and
off white epoxy enamel.

SHIPPING WEIGHT: 12 lbs.

OPTIONAL ACCESSORIES

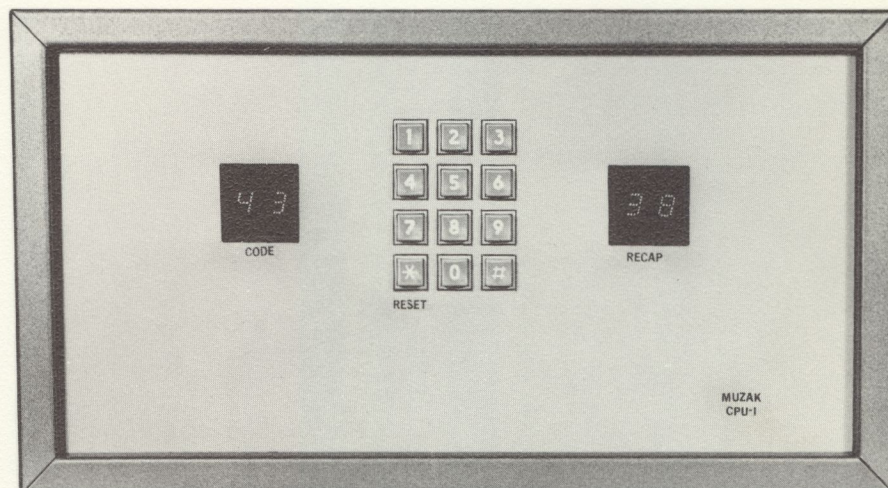
FOR REMOTE DIALING: . . Tone Dial Adapter, DAT-1
Rotary Dial Adapter, DAR-1

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FEATURES

- Solid State
- Modern IC Logic
- Push Button Actuated
- Compact
- Modular Construction



Model CP-1

GENERAL DESCRIPTION

The MUZAK Model CP-1 is a push button actuated, solid state, logic, chime paging control unit designed to operate in conjunction with any Muzak Sound System. It enables the control operator to push button select any desired two digit paging code and reproduce it with pleasant sounding chime tones throughout the Muzak speaker system. The paging code selected may be repeated as desired by simply push button selecting the desired number of repeats.

The Model CP-1 features a standard push button telephone dial mechanism for encoding paging information. A three digit number is used to encode information into the system. The first two digits select the desired paging code, the third selects the desired number of times the code is repeated.

The control unit is completely solid state with no moving parts to wear out. It uses modern digital logic utilizing standard computer techniques. Each function is on its own plug-in printed circuit board for ease in servicing and maximum flexibility. By the simple addition of a tone decoder board, the control unit is compatible with any push button telephone system for ease in operating the system from the "in house" telephone system. Additionally, the control unit can be easily remote controlled from any location within the building.

ARCHITECT'S/ENGINEER'S SPECIFICATIONS

The Muzak CP-1 Chime Paging Unit shall consist of a 5 volt regulated power supply, an octal to binary convertor, a 1000 number decoder card, a 100 number chime code memory card, a 10 number repeat sequence memory card and a standard push button dial matrix mounted in an attractive metal case intended for shelf mounting. All printed circuit boards shall be keyed electrically to prevent damage caused by incorrect insertion into the socket.

The Model CP-1 Chime Paging Unit shall be designed to prevent additional dial sequence codes from interrupting its operation or causing an incorrect code to be transmitted in the event it is in operation when a second code is encoded. It shall be designed to accept any three digit dial code not containing "O's". The first two numbers shall set the chime code memory card to transmit chime code tones corresponding to the dialed number with a pause between sets of tones. The third digit dialed shall set the repeat sequence memory card to repeat the chime code corresponding to the number dialed with pauses between sets of numbers.

It shall be designed to operate from standard 115 V.A.C. 60 Hz line voltage and shall consume no more than 10 watts.

Section V File N4



FEATURES

- Solid State for high reliability.
- Low voltage operation for safety.
- Low power consumption, 2 watts maximum.
- FCC certified for direct connection to key telephone lines through standard plugs and cables.
- Provides Muzak on hold on up to five extension phone lines.
- Simple to use and maintain.

GENERAL DESCRIPTION

The Muzahold, MH-1 Control Unit is designed to automatically connect Muzak to telephone lines of Key Telephone Systems when they are placed in the "HOLD" status. Each MH-1 will accommodate up to five extension lines. Connection of the MH-1 to a Key Telephone System is by means of a standard plug and cable arrangement, as established and approved by the Federal Communications Commission.

The solid state design of the MH-1 provides low power consumption and high reliability. Power for the MH-1 is supplied by its companion power pack which delivers low voltage A.C. via a miniature plug and jack arrangement.

The Muzahold MH-1 has an integral mounting bracket on its bottom side that has two key hole slots located $5\frac{3}{8}$ inches apart for mounting on a wall.

The MH-1 is designed for an audio level input of $\frac{1}{4}$ watt maximum, or 1.4 volts into its 8 ohm input terminating resistor. Two screw terminals are provided for Muzak input.

The required audio input level may be furnished by the Muzak 1 watt amplifier, model A-1 and its external power supply model PS-2. The A-1 can furnish audio power for two MH-1s.

Connections to the telephone network are made through standard plug and jack arrangements using either a telephone company supplied RJ 24 X connector for use with 1 A 2 Key Telephone Systems or a RJ 22 X connected for use with 1A1 Key Telephone Systems. When the MH-1 is used with a 1A1 system a special lead translating cable is required with the RJ 22X to achieve a proper interface with the telephone network. This cable is a RJ 22 X cable adapter, Muzahold model MH-22X.

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The Music On Hold control unit shall be the Muzak model MH-1 MUZA HOLD or equivalent. The control unit shall have a power dissipation of no more than 2.5 watts when operated from a UL listed low voltage power transformer providing 9 volts AC. The audio output of the control unit shall be limited to values less than -9dBm with a maximum allowable signal input of 1.4 volts. Input impedance shall be 8 ohms. Frequency response of the control unit audio circuits shall be within 3 dB from 200 to 4000 Hz. The control unit shall be FCC certified for direct connection to the telephone network using standard plugs and jacks.

CIRCUIT SWITCHING: Reed Type Relays
INPUT IMPEDANCE: 8 ohms
INPUT AUDIO LEVEL: 250 MW (1.4V rms @
8 ohms) Max.
FREQUENCY
RESPONSE: 200 to 4000 Hz
OUTPUT LEVEL: Limited to less than -9dBm,
Adjustable.
OUTPUT IMPEDANCE: 600 ohms.
AC POWER INPUT: 9 VAC, from 115V, 50-60 Hz
power Pack, (supplied).

OPTIONAL

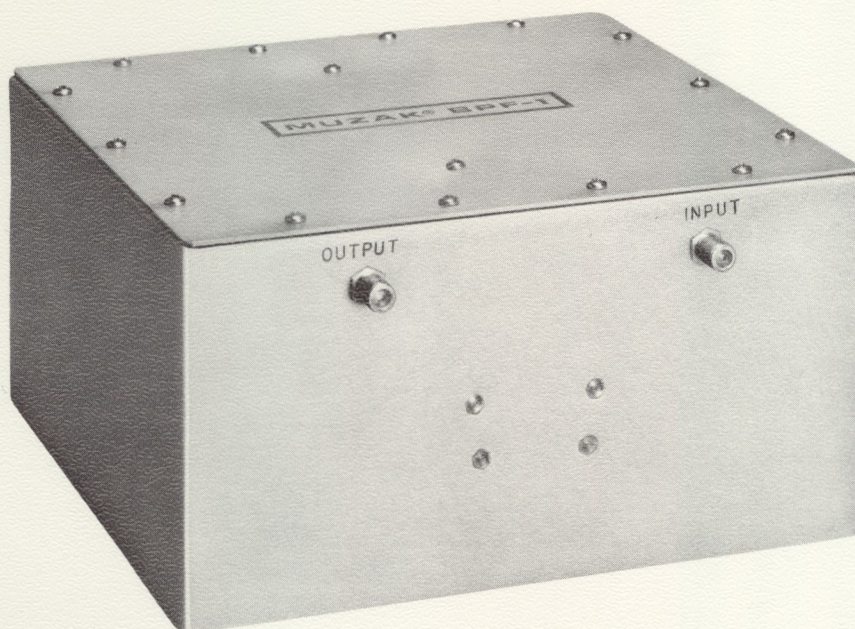
ACCESSORIES:

- RJ22X Adapter Cable, Model, MH-22X/
- 1 Watt Amplifier, Muzak Model, A-1.
- Power Supply for 1 watt Amplifier Model PS-2.

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MODEL BPF-1 TUNABLE BAND PASS FILTER



GENERAL DESCRIPTION

The Muzak band pass filter model BPF-1 was designed for use in the FM band, 88 to 108 MHz to increase the receiving system selectivity to reduce or eliminate interference caused by other signals 1 MHz or more removed from the desired signal.

The BPF-1 is connected into the antenna line to the tuner or receiver. It is passive and requires no external D.C. power. Its nominal 3dB bandwidth is 500 KHz.

The unit is normally located near the receiver or tuner, since it is not designed for outdoor use.

The BPF-1 consists of two critically coupled resonant circuits having high Q coils and series tuning capacitors. The enclosure is made of aluminum and gold iridited.

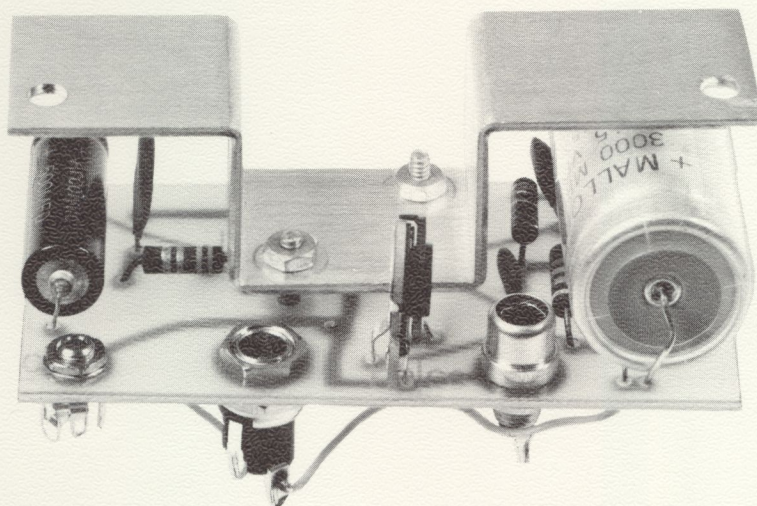
When ordering the BPF-1 specify the desired frequency of operation so that it may be tuned at the factory. Tuning instructions are supplied with each unit.

SPECIFICATIONS

TYPE:	Bandpass, Butterworth, two pole
FREQUENCY RANGE: ..	88-108 MHz (Tunable)
BANDWIDTH (NOM.):	3dB @ 500 KHz 10dB @ 1 MHz 20dB @ 1.8 MHz 30dB @ 3.3 MHz 3dB (Typ.)
INSERTION LOSS:	
INPUT AND OUTPUT IMPEDANCE:	75 Ohms
INPUT AND OUTPUT CONNECTORS:	F-61
TUNING MECHANISM: ..	Two External Adjustments
ENCLOSURE MATERIAL: ..	Aluminum (Gold Iridited)
DIMENSIONS:	9" x 8" x 5"
WEIGHT:	4 lbs.

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GENERAL DESCRIPTION

The model A-1 is a 1 watt audio amplifier designed to provide pre-amplification for the Muzak on hold unit, Muzahold model MH-1.

The A-1 is an open frame unit configured to mount into a single gang electrical box. It consists of a printed circuit board on which are mounted a 1 watt integrated circuit amplifier and associated components. An aluminum bracket used to support the amplifier also serves as a heat sink for the integrated circuit. Low frequency boost is incorporated to compensate for the telephone receiver's inherent deficiency.

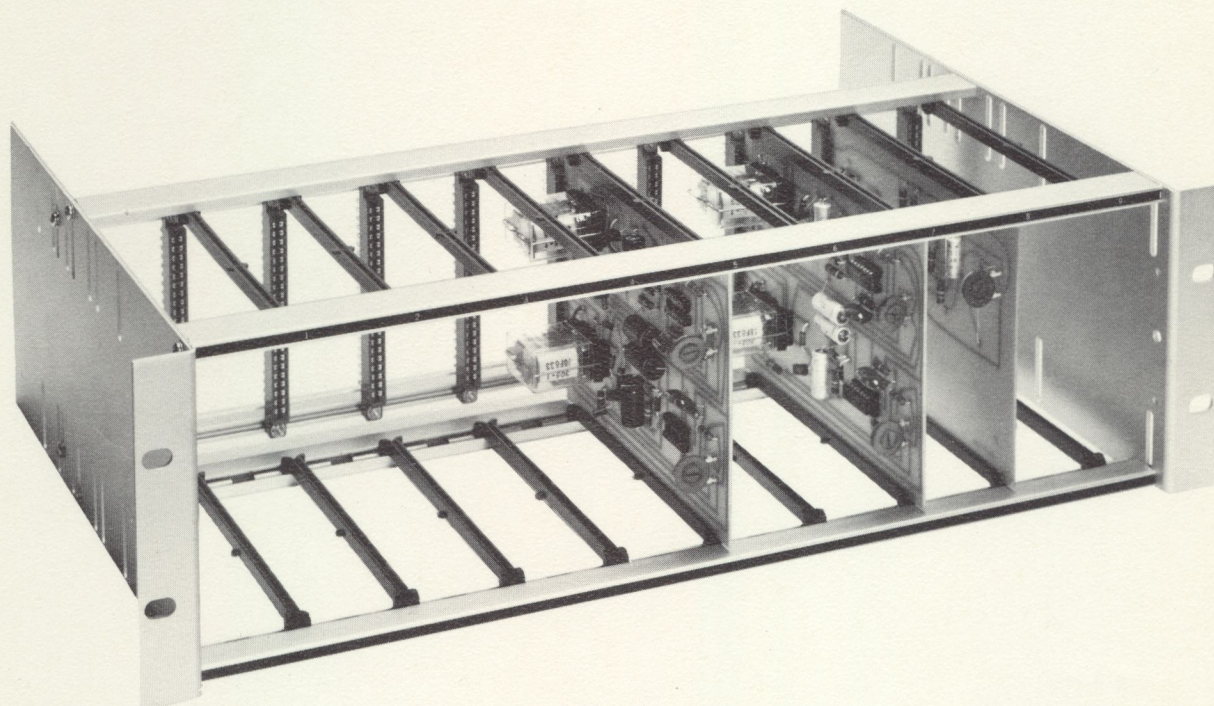
An external power supply, Muzak PS-2 is used to furnish the required filtered 12 VDC.

SPECIFICATIONS

POWER OUTPUT:	1.0 Watts RMS @ 8 Ohms
LOAD IMPEDANCE:	4-16 Ohms
DISTORTION, THD:	Less than 2%
INPUT IMPEDANCE:	1.0 K Ohms
SENSITIVITY: . . . . .	.25 V @ 1.0 KHz for rated output
FREQUENCY RESPONSE:	± 1.0 dB, 1.0 KHz-10 KHz + 3.0 dB @ 500 Hz, + 12 dB @ 50 Hz
HUM AND NOISE:	-50 dB
INTEGRATED CIRCUIT: . .	LM 380 N-8
DIMENSIONS:	3½" L, 1¾" W, 1¾" H
WEIGHT:	3 oz.
OPTIONAL ACCESSORY:	Power Supply PS-2, rated 12 V @ 350 MA., Filtered

MUZAK®

MODEL CH-1 CARD HOLDER



GENERAL DESCRIPTION

Muzak card holder model CH-1 is designed to accommodate nine standard 4.5"x6" printed circuit plug-in boards, such as Muzak models AM-2 and SLM-1 supervisory equipment.

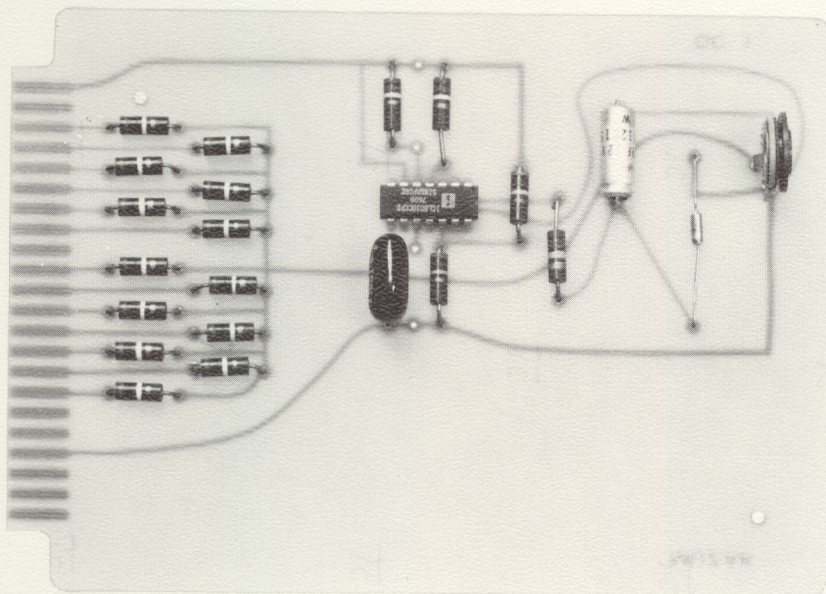
The CH-1 is fully assembled with nine, 22 contact P.C. connectors and card guides. It will mount in a standard 19" cabinet and occupy 5.25" of vertical space. The CH-1 frame is made with anodized aluminum, end plates and extrusions. Identification strips and card guides are moulded plastic.

SPECIFICATIONS

CARD CAPACITY:	Nine, 4½" (11.4CM) x 6" (15.2 CM)
CARD SPACING:	1.75" (4.4CM)
CONNECTORS:	Dual 22 contact P.C. connector, 0.156" spacing
RACK SPACE:	5.25" (13.3CM) x 19" (48.3 CM)
DEPTH:	11" (27.9 CM)
MATERIAL:	Anodized aluminum, end plates and extrusions
WEIGHT:	3 lbs.

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GENERAL DESCRIPTION

The model GC-1 generator is designed to provide a 20 Hz pilot signal for amplifier and speaker line supervisory equipment such as Muzak models AM-2 and SLM-1. The GC-1 can supply up to 13 similar high input impedance amplifiers.

The GC-1 utilizes a model ICL-8038 integrated circuit to generate the pilot signal. The signal is applied to an output level control that feeds 13 unbalanced outputs through isolation resistors of 100K Ohms. The GC-1 operates from a 12 volt regulated supply.

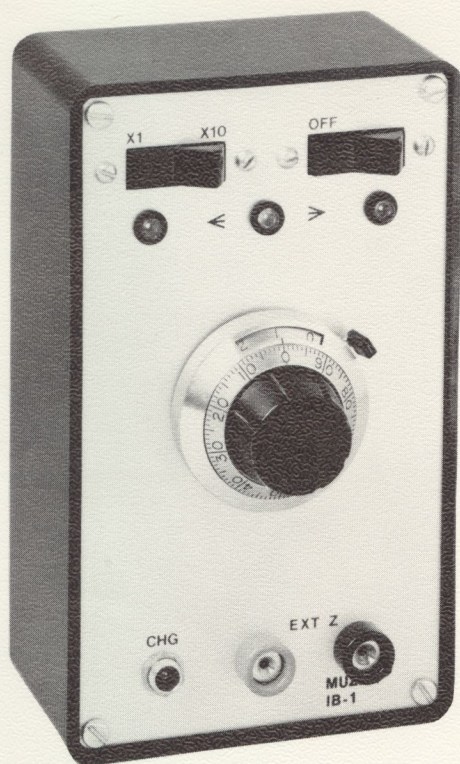
The GC-1 is constructed on a plug-in printed circuit card 4½" x 6" with 22 gold plated contacts spaced 0.156".

SPECIFICATIONS

FREQUENCY:	.....	20 Hz, $\pm 10\%$, fixed
OUTPUT (13):	.....	0.3 VRMS into 100 K Ohms Load MAX.
DISTORTION, THD:	.....	Less than 5%
SUPPLY VOLTAGE:	.....	12 VDC, Regulated
CARD SIZE:	.....	4½" (11.4CM) x 6" (15.2CM)
CARD MATERIAL:	G-10, W/2 Oz, CU, Gold Plated Contacts
INTEGRATED CIRCUIT:	ICL-8038
WEIGHT:	2 Oz.

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MODEL IB-1 IMPEDANCE BRIDGE



GENERAL DESCRIPTION

The Muzak IB-1 impedance bridge was designed as a field instrument for measurement of speaker load impedances in the range of 10 ohms to 10 K ohms, commonly found on 25 volt and 70 volt system lines.

The IB-1 will indicate a condition of balance between the unknown impedance and the value of its 10 turn, potentiometer and associated multiplier switch, when all three of its L.E.D. displays are "on".

The IB-1 has a built-in oscillator operating around 400 Hz as the signal source. The unit is powered by two 4.8 volt nickel-cadmium batteries that are rechargeable by means of the Muzak PS-2 15 volt supply. A coaxial power jack on the front panel is provided for this purpose. The power switch connects the batteries to the power jack when it is in the "off" position for charging. Connection for measurement is made by means of two tip jacks.

SPECIFICATIONS

IMPEDANCE RANGE:	10-1 K ohms, X1 range 100-10 K ohms, X10 range
ACCURACY:	± 10%
INTERNAL OSCILLATOR FREQUENCY:	400 Hz ± 10%
POWER:	(2) 4.8 V, .225 Ahr, Ni-Cad Batteries
SIZE:	6¼"H x 3¾"W, x 3⅛"W
WEIGHT:	1 lb., 2 oz.
CHARGING RATE:	10 hr @ 22 ma
OPTIONAL ACCESSORY:	Muzak Charger PS-2

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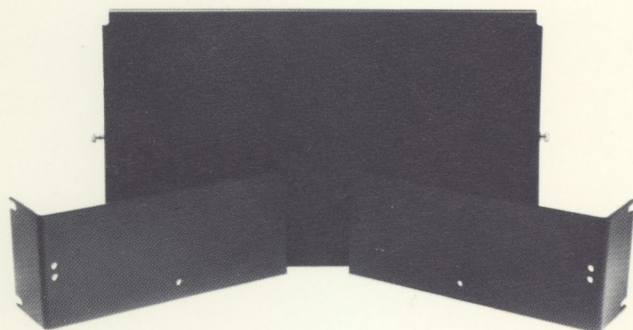


rack mounting kits for "A" series amplifiers

DESCRIPTIONS:

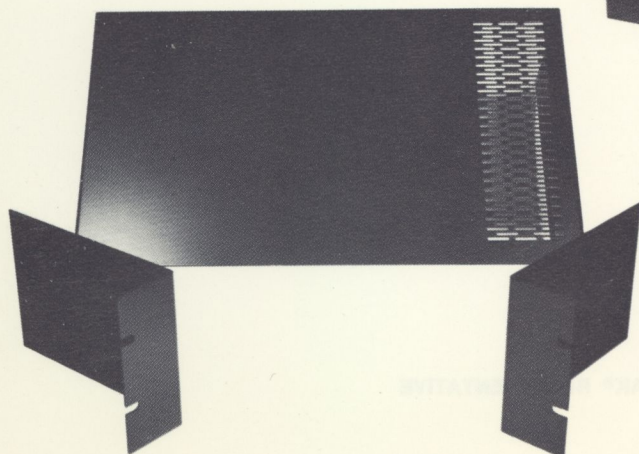
The RMA-10, RMA-20, and RMA-75 are Rack Mounting Kits for the "A" series MUZAK amplifiers. The RMA Rack Mount Kits can be used with all available equipment Rack Manufacturers that conform to the standard EIA and Western Electric panel mount spacings.

The component parts of a kit consists of two side brackets and a removable cover. All components are fabricated from heavy gauge aluminum, finished in standard MUZAK blue. When installed, the removable cover allows easy access to amplifier interior for service and adjustments.



KIT	FOR MOUNTING	H	D	W
RMA-10	A-10 Amplifier	3 1/2"	8 11/32"	2 19/64"

KIT	FOR MOUNTING	H	D	W
RMA-20	A-20 Amplifier	5 1/4"	8 9/32"	2 19/64"



KIT	FOR MOUNTING	H	D	W
RMA-75	A-75 Amplifier	5 1/4"	10"	7/8"

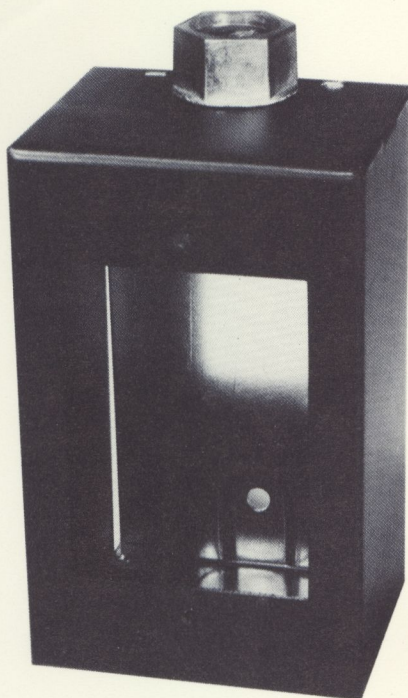
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SECTION V File N-1

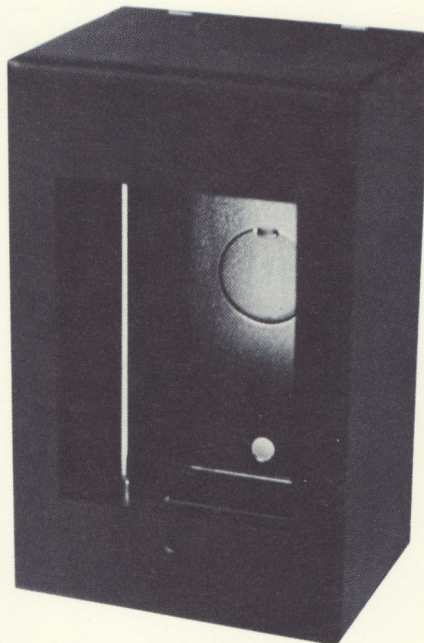
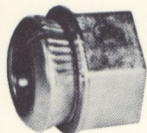
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UB-1 utility box



WITH CONNECTORS



WITHOUT CONNECTORS

DESCRIPTION

The MUZAK UB-1 utility box is made of steel and has standard $\frac{7}{8}$ " knockouts in the top, bottom, and back plate. The back is removable to facilitate installation.

The UB-1 is ideal for mounting the MUZAK VC-27 volume control or the MUZAK MO-5 microphone receptacle. Two tapped holes on the box front permit the use of a standard single gang box cover when so desired.

A special conduit connector UB-1 coupler is available for use with the UB-1. This connector eliminates the need for bending an offset in connecting conduit in order for the conduit to lay flat against a surface. The UB-1 coupler fits a standard $\frac{7}{8}$ " knockout and is used with $\frac{1}{2}$ " conduit.

The box finish is standard MUZAK blue.

SPECIFICATIONS

MATERIAL	#18 gauge steel
SIZE	4 $\frac{5}{8}$ " high, 2 $\frac{7}{8}$ " wide, 2 $\frac{1}{4}$ " deep
BACK PLATE	Two mounting holes for #10 screws
FRONT PLATE	Two tapped 6/32 screw holes (3 9/32" centers) Accepts all standard single gang plates
KNOCKOUTS	$\frac{7}{8}$ " diameter (for $\frac{1}{2}$ " conduit)
UB-1 coupler for above	

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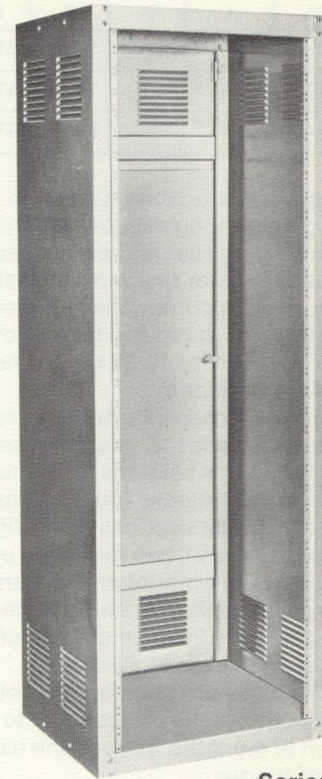
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SECTION V FILE N-2

SPECIFICATIONS

MODEL	WIDTH	HEIGHT	DEPTH	PANEL SPACE—IN.	SHIPPING WEIGHT	OPTIONAL MODEL	FRONT DOOR SHIPPING WEIGHT
M100-42	22 $\frac{3}{8}$ "	46 $\frac{5}{8}$ "	18 $\frac{1}{2}$ "	42.00"	105 lbs.	110-42	24 lbs.
M100-61	22 $\frac{3}{8}$ "	65 $\frac{5}{8}$ "	18 $\frac{1}{2}$ "	61.25"	115 lbs.	110-61	27 lbs.
M100-77	22 $\frac{3}{8}$ "	81 $\frac{5}{8}$ "	18 $\frac{1}{2}$ "	77.00"	135 lbs.	110-77	33 lbs.

Models MWA100-42, MWA100-61 and MWA100-77 are fully assembled and welded.

- 16 gauge CRS throughout
- $\frac{1}{8}$ " CRS tapped panel mounting rails
- 1 $\frac{1}{4}$ " x $\frac{1}{2}$ " panel mount spacing standard
- $\frac{1}{4}$ " offset for panel mount
- 10-32 x $\frac{5}{8}$ " pan head screws for assembly of panels
- $\frac{1}{4}$ " x $\frac{1}{2}$ " pan head screws for assembly of cabinet
- Slip jointed hinges on rear door and continuous piano hinge on optional front door
- Low profile handle and cylinder lock (front and rear doors keyed differently)
- $\frac{3}{4}$ " conduit knockouts on top, bottom and rear flanges
- Internal louvers on all sides and the rear door
- Engineered scuff resistant packing
- All models shipped disassembled only except for MWA models.
- Standard 19" rack panels



Series M100

MUZAK SERIES M100 CABINET RELAY RACKS

GENERAL DESCRIPTION

Muzak's cabinet relay racks are designed for standard 19" rack panels. Sturdy 16 gauge CRS is used throughout. A rear door is provided as standard equipment and is hung on strong slip jointed hinges. The top pin hinge is extra long thus reducing alignment problems when assembling. A cylinder lock and low profile handle complete the rear door assembly. Knockouts and internal louvers are among the exclusive features. Six $\frac{3}{4}$ " conduit knockouts (3 on top and 3 on back flange) are provided at the top of the rack with six knockouts at the bottom (3 on bottom and 3 on back flange). External wiring is easily and neatly introduced to the cabinet. All louvers are internal in design. Ventilation is improved while providing a neat appearance. Internal louvers reduce stacking problems when more than one cabinet is used. The panel mounting rails are recessed $\frac{1}{4}$ " for a "flush" look.

M100 cabinet relay racks are shipped disassembled. The unit is easily and completely bolted together with $\frac{1}{4}$ " x $\frac{1}{2}$ " pan head screws. Panels are mounted with 10-32 x $\frac{5}{8}$ " pan head screws provided with the cabinet. An exclusive packaging procedure avoids painted surfaces rubbing against the carton. An unusual scuff resistant material is used where needed. The standard finish is baked on covering a phosphate treatment. Both standard and non-standard colors are available.

The Model MWA100 is similar to Model M100 except that it's fully assembled and welded.

(OPTIONAL)

Series M110 16 gauge CRS front doors may be ordered with Series M100 cabinets or separately. The depth is 1" to clear all protruding knobs. The lock and handle are the same style as the rear door except the locks are keyed differently for security. Series M110 optional front doors are mounted on a rigid continuous piano hinge. Door mounting instructions and necessary hardware are furnished.

ARCHITECT'S/ENGINEER'S SPECIFICATIONS

The cabinet relay rack shall be a Muzak model or approved equal. It shall be constructed of 16 gauge CRS throughout. It shall have $\frac{3}{4}$ " conduit knockouts on the top, bottom and rear flanges. It shall have internal louvers for improved ventilation. It shall have a rear door supported on slip jointed hinges and shall be equipped with a low profile handle and cylinder lock.

It shall have panel mounting rails with 10-32 tapped holes. The rails shall be constructed of $\frac{1}{8}$ " CRS.

(OPTIONAL)

It shall have a Muzak model.....front door or approved equal mounted on a continuous hinge. The door shall have a cylinder lock the same in style but keyed differently from the rear door and the same low profile handle. The door shall be 1" deep to clear all control knobs.

MUZAK SERIES M300 SECTIONAL WALL CABINETS

SPECIFICATIONS

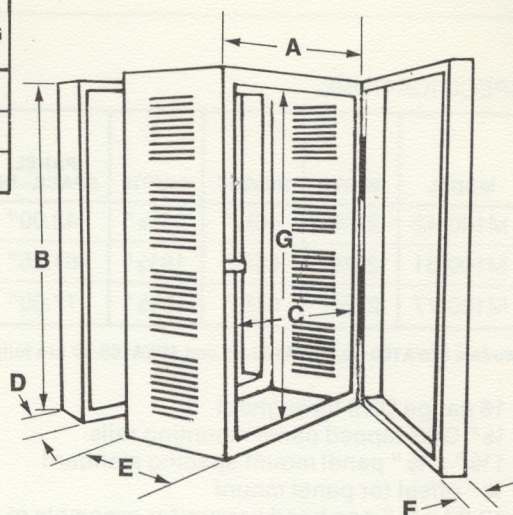
MODEL	A	B	C	D	E	F	PANEL SPACE G	D-E-F	SHIPPING WEIGHT
M300-17	20 $\frac{5}{8}$ "	20 $\frac{1}{2}$ "	19 $\frac{1}{8}$ "	4 $\frac{1}{2}$ "	11"	2"	17 $\frac{1}{2}$ "	17 $\frac{1}{2}$ "	46 lbs.
M300-28	20 $\frac{5}{8}$ "	31"	19 $\frac{1}{8}$ "	4 $\frac{1}{2}$ "	11"	2"	28"	17 $\frac{1}{2}$ "	75 lbs.
M300-42	20 $\frac{5}{8}$ "	45"	19 $\frac{1}{8}$ "	4 $\frac{1}{2}$ "	11"	2"	42"	17 $\frac{1}{2}$ "	125 lbs.

- 16 gauge construction on all three sections
- 11 gauge mounting supports on the larger models
- Hinges holding rear and center sections are bolted
- Rear section is of one piece construction, spot welded angle braces at each corner, electric welded seams at $\frac{3}{4}$ " gussets
- $\frac{1}{2}$ " knockouts at top and bottom of rear section
- Center section has 10-32 tapped holes for panel mounting (hardware included)
- Center section has internal louvers on sides and bottom
- Center section has 16 gauge braces at each corner joint
- Center and back sections are secured with one or two one-quarter turn camlocks (one for small unit, two for larger units)
- Center and back sections have alignment pins for strength (one for small unit, two for larger units)
- Back hinges are mounted with carriage bolts, 3 hinges on the larger models and 2 hinges for the smaller model
- Front doors are 2" deep and are of one piece construction with electric welds at all seams
- Cylinder locks are standard on both models
- Back section securely fastened to wall before center section is mounted through the use of removable pin type hinges
- Front door cannot be removed from hinges while locked
- All models shipped completely assembled

GENERAL DESCRIPTION

Muzak's sectional wall mounting cabinets are designed for standard 19" rack panels. All three sections use 16 gauge CRS throughout. The back cabinet is of one piece construction with a spot welded 16 gauge CRS angle brace at each corner. A $\frac{3}{4}$ " gusset is formed around the back cabinet with the seams welded. Models M300-28 and M300-42 have 11 gauge mounting support on the back wall of the rear section. The hinges are not welded but are bolted to give extra strength. The hinges are the removable pin type. This allows the back section to be securely fastened to the wall independently of the center section. The 17" model has two hinges holding the center and back sections together while the 28" and the 42" models have three.

Knockouts and internal louvers are among the exclusive features. $\frac{1}{2}$ " conduit knockouts are located at the top and bottom of the rear section while internal louvers are located on the sides and bottom of the center section. Internal louvers are especially desirable for improved ventilation and present a neat and clean appearance. The center cabinet is strengthened with 16 gauge braces



at each corner or joint. One-quarter turn camlocks which are easily accessible from the front, help secure the center to the rear section. There are two on the large models while one is used on the smaller model. Additional strength is gained through the use of alignment pins between the center and rear sections. Two are used on the large models while one is used on the smaller model. All models have a 2" deep front door with one piece electric welded construction. Cylinder locks are standard equipment. The front door hinge is constructed so that the front door cannot be removed while locked. Finally, all models have tapped panel mounting rails and 10-32 x $\frac{5}{8}$ " pan head screws for panel mounting. All units are shipped completely assembled. An exclusive packaging procedure avoids painted surfaces rubbing against the carton. An unusual scuff resistant material is used where needed. Both standard and non-standard colors are available.

ARCHITECT'S/ENGINEER'S SPECIFICATIONS

The sectional wall mounting cabinet shall be Muzak model or approved equal. It shall be constructed of 16 gauge CRS throughout. Hinges shall be bolted and not welded for strength. Rear section shall be of one piece construction with electric welding at all seams. Rear section shall have braces at all corners. Rear section shall have $\frac{1}{2}$ " conduit knockouts at the top and bottom. Center section shall have internal louvers on the sides and bottom. Center section shall be secured with one-quarter turn camlocks and alignment pins. Panel mounting rails shall be tapped for 10-32 screws. Front door shall be 2" deep and of one piece construction. All joints shall be electric welded. A cylinder lock shall be mounted on front door.

MUZAK

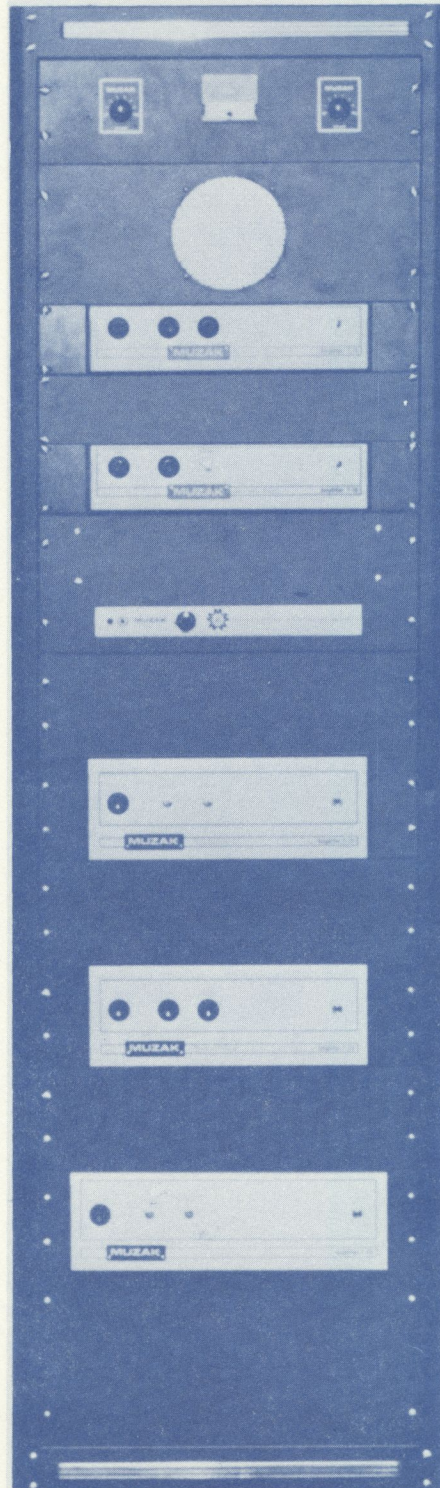
MUZAK CORPORATION • 100 PARK AVENUE • NEW YORK, NEW YORK 10017



MUZAK®-SPECIALISTS IN SOUND

MUZAK EQUIPMENT RACKS & PANELS

M-1780



*Attractively finished
in Muzak Blue*

*For mounting the
Muzak "T Series"
amplifiers and
STR-100 tuners*

*If more than one rack
is required, you can
use the M-1779
Add-A-Rack*

*Available with or
without rear door*

*All panels are 1/8"
thick aluminum (suitable
for custom
fabrication).*

*"T" amplifiers shown are
mounted with Muzak RM
rack mount ears for
T Series amplifiers*

*Blank Panels in Muzak
Blue are available in
sizes from 1 3/4" to 12 1/4"*

TYPICAL USE

NOTE: All panels shown are available except meter panel.

BELL

PROFESSIONAL AUDIO

DESCRIPTION:

The TD-320 is a heavy duty, commercial grade tape deck, designed to inject messages, special music, or other program material into existing sound systems. It has a built in electronic timer which can be programmed to turn the machine on at any interval from 30 seconds to 45 minutes. (Longer time intervals are available on special order.) The TD-320 is equipped to automatically silence background music or other program material during its "on" cycle. Model TD-325 is available without the electronic timer, which permits the machine to be turned on from a remote switch or relay.

- POINT OF PURCHASE AIDS
- SAFETY OR SECURITY
- ANNOUNCEMENTS
- STORECAST ADVERTISING
- BUSINESS RADIO CALL LETTERS
- EXHIBITS & DISPLAYS

An automatic erase feature is provided, thus eliminating the need for a bulk eraser, as is required by some units of this type.

Each time the record/start buttons are depressed, a 1000 Hz tone burst is recorded on the lower track, which becomes the cue tone to stop the machine when in the playback mode.

Four LED's provide a visual scale of the recording level to assure proper quality and continuity.

TAPE DECK

MODEL TD 320 RECORD/PLAYBACK

SPECIFICATIONS

Tape Speed:

3.75 IPS (Standard)

7.5 IPS (Special)

Frequency Response:

+1, -3 db from 50 to 7500 Hz @ 3.75 IPS

±1 db from 50 to 10,000 Hz @ 7.5 IPS

Microphone Input:

Hi Z, 5 Millivolts sensitivity

Auxiliary Input:

Hi Z, .25 Volts sensitivity

Output: 2.0 Volts

Distortion: Less than 1.5%

Flutter:

.3% @ 3.75 IPS

.25% @ 7.5 IPS

Hum & Noise:

50 db below operating level

Power: 120 VAC, 60 Hz

Cartridges:

N.A.B. Types A (300') and B (600')

Size: 7" H x 11" W x 11.5" D

Weight: 18 lbs



BELL AUDIO SYSTEMS, INC.

994 Freeway Drive North, Building No.6 Columbus, Ohio 43229

A Subsidiary of Solid State Controls, Inc.

BELL

PROFESSIONAL AUDIO

DESCRIPTION:

The TD-200 is a heavy duty, commercial grade, programmable tape deck designed to inject messages, special music, or other program material into existing sound systems. It has a built in electronic timer which can be programmed to turn the machine on at any interval from 30 seconds to 45 minutes. (Longer time intervals are available on special order.) The TD-200 is equipped to silence background music or other programming during its "on" cycle.

The TD-200 uses standard NAB continuous loop cartridge tapes and will provide up to 30 minutes of special programming. A dual half-track head is

utilized to provide the message or music on the upper track, while the lower track is used to stop the machine when 1000 Hz cue tone is sensed. This cue tone is automatically put on the tape at the start of each message when the cartridge is recorded on a model TD-320 Record/Play unit.

The TD-200 is normally used as an "on premise" unit and the pre-recorded tapes are made at a central location on a TD-320 Record/Playback unit or other compatible equipment. This assures good quality, professional messages, and centralized control of the special program material.

Model TD-225 is available without the electronic timer which permits the machine to be turned on manually with a remote switch, or relay contact closure.

- POINT OF PURCHASE AIDS
- SAFETY OR SECURITY
- ANNOUNCEMENTS
- STORECAST ADVERTISING
- BUSINESS RADIO CALL LETTERS
- EXHIBITS & DISPLAYS

TAPE DECK

MODEL TD 200 PLAYBACK

SPECIFICATIONS

Tape Speed:

3.75 IPS (Standard)

7.5 IPS (Special)

Frequency Response:

+1, -3 db from 50 to 7500 Hz @ 3.75 IPS

±1 db from 50 to 10,000 Hz @ 7.5 IPS

Output: 2.0 Volts

Distortion: Less than 1.5%

Flutter:

.3% @ 3.75 IPS

.25% @ 7.5 IPS

Hum & Noise:

50 db below operating level

Power: 120 VAC, 60 Hz

Cartridges:

N.A.B. Types A (300') and B (600')

Size: 7" H x 11" W x 11.5" D

Weight: 18 lbs



BELL AUDIO SYSTEMS, INC.

994 Freeway Drive North, Building No.6 Columbus, Ohio 43229

A Subsidiary of Solid State Controls, Inc.



"Finest in Sound Equipment Since 1932"

AUDIO SYSTEMS, INC. • 944 Freeway Dr. N. • Columbus, Ohio 43229 • Phone (614) 846-2766

Effective: 7-1-78

Supersedes: 7-1-77

<u>MODEL</u>	<u>DESCRIPTION</u>	<u>WT.</u>	<u>LIST</u>	<u>NET</u>	<u>COST</u>
TQ SERIES Silicon Solid State, Full fidelity, PA amplifiers supplied with quarter inch phone receptacle mic inputs. All inputs HiZ, if LoZ is required use external line matching transformer (LMT-1 or equal)					
TQ 150	15W (12W., RMS) 1 HiZ Mic, 1 Aux	6#	\$155.00	\$ 93.00	\$ 62.00
TQ 302	40W (30W., RMS) 2 HiZ Mic, Phono/Aux	17#	305.00	183.00	122.00
TQ 304	40W (30W., RMS) 4 HiZ Mic, Phono/Aux	17#	360.00	216.00	144.00
TQ 602	80W (60W., RMS) 2 HiZ Mic, Phono/Aux	19#	412.50	247.50	165.00
TQ 604	80W (60W., RMS) 4 HiZ Mic, Phono/Aux	19#	452.50	271.50	181.00
TQ 1402	190W (140W., RMS) 2 HiZ Mic, Phono/Aux	32#	575.00	345.00	230.00
TQ 1404	190W (140W., RMS) 4 HiZ Mic, Phono/Aux	32#	612.50	367.50	245.00

TX SERIES — Silicon Solid State, high fidelity, professional sound amplifiers, supplied with male XLR mic inputs. All mic inputs, balanced LoZ with built in, broadcast quality, double mu-metal shielded input transformers.

TX-150	15W (12W., RMS) 1 LoZ Mic, 1 Aux	6#	\$205.00	\$123.00	\$ 82.00
TX-340	40W (30W., RMS) 4 LoZ Mic, Phono/Aux	18#	560.00	336.00	224.00
TX-640	80W (60W., RMS) 4 LoZ Mic, Phono/Aux	20#	652.50	391.50	261.00
TX-1440	190W (140W., RMS) 4 LoZ Mic, Phono/Aux	33#	812.50	487.50	325.00

MOD SERIES SILICON SOLID STATE MODULAR AMPLIFIERS

NOTE: To order a custom modular amplifier or mixer, specify the appropriate "B" model below and indicate the input or control modules required. The modules will be factory installed and the complete unit tested prior to shipping.

MOD-45B	45 Watt, No Modules	19#	390.00	234.00	156.00
MOD-90B	90 Watt, No Modules	24#	510.00	306.00	204.00
MOD-200B	200 Watt, No Modules	31#	693.00	416.00	277.00
MIX-6B	Basic Mixer W/1, OMR-1 & 1, MPS-1		128.00	77.00	51.00
MIX-12B	Basic Mixer W/2, OMR-1 & 2, MPS-1		243.00	146.00	97.00

CUMULATIVE MIXING MODULES

MMH-1	MicPreamp, HiZ		40.00	24.00	16.00
MML-1	MicPreamp, Bal, LoZ		63.00	38.00	25.00
PMH-1	Program Preamp, HiZ		35.00	21.00	14.00
PMH-3	Mag Phono & Tape Head		55.00	33.00	22.00
PML-1	Program Preamp, Bal 600 ohm		58.00	35.00	23.00
TGM-2	Chime Tone Generator		68.00	41.00	27.00
TGM-3	Yelp Siren		68.00	41.00	27.00
TGM-4	Wail Siren		68.00	41.00	27.00
TGM-5	Continuous Tone Siren		68.00	41.00	27.00

CONTROL-MIXING MODULES

MMH-2	MicPreamp, HiZ Precedence Paging		53.00	32.00	21.00
MML-2	MicPreamp, Bal LoZ Precedence Paging		75.00	45.00	30.00
PML-2	Program Preamp, Bal. 600 ohm, Prec. Paging		73.00	44.00	29.00

CONTROL MODULES

VLM-1	Volume Limiter		63.00	38.00	25.00
RVM-1	Remote Volume Control		55.00	33.00	22.00

SPECIAL MODULES

OMR-1	Record Output Module		40.00	24.00	16.00
OML-1	Balanced 600 ohm Output Module		65.00	39.00	26.00
MPS-1	Power Supply Module		40.00	24.00	16.00
LXM-1	Bal Lo Z, Mic Level Output		55.00	33.00	22.00
VLP-1	Vol Limiting Mic Preamp, Bal Lo Z		83.00	50.00	33.00
VLP-2	Vol Limiting Mic Preamp, Hi Z		68.00	41.00	27.00
VLP-3	Vol Limiting 600 Ohm Preamp		83.00	50.00	33.00
TCM-2	Tone Control Module		58.00	35.00	23.00

SOLID STATE POWER AMPLIFIERS

TPA-45	45 Watt HiZ-Aux, 600 Ohm, w/2275	16#	348.00	209.00	139.00
TPA-90	90 Watt HiZ-Aux, 600 Ohm, w/2275	22#	455.00	273.00	182.00
TPA-200	200 Watt HiZ-Aux, 600 Ohm, w/2275	29#	635.00	381.00	254.00

<u>MODEL</u>	<u>DESCRIPTION</u>	<u>WT.</u>	<u>LIST</u>	<u>NET</u>	<u>COST</u>
SPECIAL PURPOSE AMPLIFIERS					
TM30A	30 Watt Mobile (12 VDC)	6#	\$180.00	\$108.00	\$ 72.00
TM30S	30 Watt Mobile W/3 mode Siren	6#	237.50	142.50	95.00
BEM5A	5 Mic Mixer/Preamp	9#	237.50	142.50	95.00
AUTOMATIC LIMITING AMPLIFIERS (SILICON SOLID STATE)					
ALA-45	45 Watt Limiting Amplifier	16#	348.00	209.00	139.00
ALA-90	90 Watt Limiting Amplifier	22#	455.00	273.00	182.00
ALA-200	200 Watt Limiting Amplifier	29#	635.00	381.00	254.00
tone GENERATOR AMPLIFIERS (SILICON SOLID STATE)					
TGA-45	45 Watt Tone Amplifier	16#	348.00	209.00	139.00
TGA-90	90 Watt Tone Amplifier	22#	455.00	273.00	182.00
TGA-200	200 Watt Tone Amplifier	29#	635.00	381.00	254.00
PA ACCESSORIES					
TT-100A	Trans FM Tuner	10#	187.50	112.50	75.00
BECC12	Portable Carrying Case & Speakers	34#	163.00	98.00	65.00
BEPT	Phono Top (16; 33; 45; 78 RPM)	11#	69.50	42.00	27.50
RPK	Rack Panel 19" Wide		30.00	18.00	12.00
(Specify Model)					
S38B	Shure Desk Stand	1#	9.00	5.50	3.50
SPEAKERS & HORNS					
848A	Compound Diffraction Proj. 30 Watt	16#	178.00	107.00	71.00
848AT	Same as 848A, includes 70V XFMR	18#	203.00	122.00	81.00
PA30A	Paging Projector 30 Watt	6#	88.00	53.00	35.00
PA30AT	Same as PA30A, includes 70V XFMR	8#	120.00	72.00	48.00
SC-30	Sound Column 30 Watt	9#	127.50	76.50	51.00
SC-60	Sound Column 60 Watt	48#	247.50	148.50	99.00
TLB-108SVT	Wall Baffle/Speaker 70 VXFMR Volume Control	4#	52.50	31.50	21.00
CLB-108SVT	Ceiling Baffle/Speaker 70 XFMR		52.50	31.50	21.00
PA-15-AT	Wide Angle 15 Watt Horn (25/70 V)	7#	92.50	55.50	37.00
MICROPHONES					
450	Paging & Dispatching		80.00	48.00	32.00
600E	Mobile Communications		87.50	52.50	35.00
545S	Dynamic Cardioid Var Imp		147.50	88.50	59.00
585SA	Shure Unisphere A. Hi Imp		110.00	66.00	44.00
515SB	Cardioid Dynamic, LoZ		65.00	39.00	26.00
575SA	Omni Dynamic, HiZ		42.50	25.50	17.00

NOTE: Quantity discounts on microphones, speakers, and accessories are available by quotation upon request.

CONNECTORS, CABLES, TRANSFORMERS

2274	LoZ Plug in Transformer (CN)		30.00	18.00	12.00
2275	600 OHM Plug In Transformer (CN / TPA)		28.75	17.25	11.50
LMT-1	Lo to HiZ, Mic Line Trans.		30.00	18.00	12.00
75MC1F	Mic Cable Plug (CN Series)		1.88	1.13	.75
XLR-311C	Mic Cable Plug (MOD)		3.75	2.25	1.50
86PM5-11	Speaker Cable Plug (CN)		2.50	1.50	1.00
32B3003	Line Matching Trans 70V (10,5,2.5,1.2,625W)		8.75	5.25	3.50

WARRANTY:

All Bell Products are guaranteed to be free of defects in components or workmanship for one year from date of shipment from the factory. In warranty products will be repaired or replaced providing it is returned, prepaid, for our inspection. The warranty is void on products which have been subjected to abuse, modification, improper use, or unauthorized repairs.

NOTE: SPECIAL SERVICES

Custom systems, components, modules, and amplifiers modified to meet functional requirements or specifications. Submit requirements for written quotation.

Systems planning assistance available. Send floor plan indicating approximate noise levels and functional requirements (i.e. mic locations, number of mics, auxiliary equipment, etc.). Our recommendation will follow by return mail.

ALL PRICES AND SPECIFICATION SUBJECT TO CHANGE WITHOUT NOTICE

TERMS: 2% 10 DAYS, NET 30 DAYS

SHIPPING: FOB COLUMBUS, OHIO



professional audio

SPECIAL PROGRAMMING TAPE DECKS

MODEL	DESCRIPTION	WT	USER NET	COST
TD-200	Playback Only, W/Electronic Timer	18#	\$412.50	\$275.00
TD-225	Playback Only, NO TIMER	18#	\$367.50	\$245.00
TD-320	Record/Play, W/ Electronic Timer	19#	\$562.50	\$375.00
TD-325	Record/Play, NO TIMER	19#	\$517.50	\$345.00

ACCESSORIES

MM-10	Special Message Mute Cover, with 10 switches to mute from 1 to 10 messages without disturbing the original recording.	1#	\$112.50	\$75.00
575SA	Hi Z, Dynamic Mic w/connector	2#	\$22.50	\$15.00
RPK-TD	Rack Panel Kit	3#	\$18.00	\$12.00
	7.5 IPS Pulley		\$15.00	\$10.00
	50 Hz Pulley		\$15.00	\$10.00
	Tape Cartridge, 40 Seconds		\$7.50	\$5.00
	Tape Cartridge, 10.5 Minutes		\$9.00	\$6.00

Quotation on Quantity Requirements Available Upon
Written Request to the Sales Department.

NOTE: Models TD-200S and TD-302S Are available on special order with an SS-11 silent sensor board instead of the electronic timer. This permits actuating the message automatically during the programmed silent periods of background music. Price is the same as the TD-200 and TD-320.



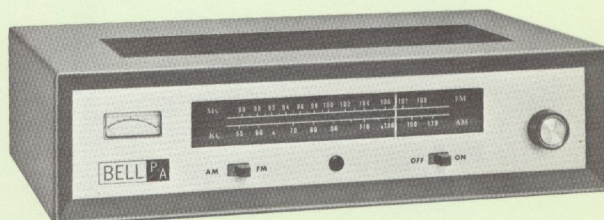
BELL

COMMERCIAL SOUND COMPONENTS

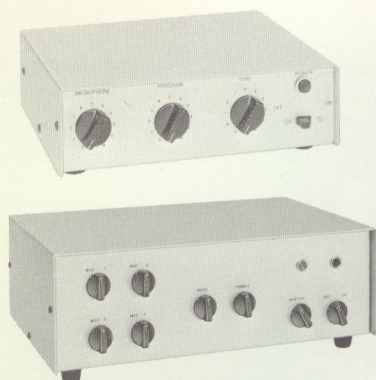
Amplifiers, tuners,
boosters, mixers,
accessories.

Customizing
and rack paneling.

Over 42 Years
in sound engineering.



BELL COMMERCIAL SOUND COMPONENTS



"T SERIES" ALL-PURPOSE AMPLIFIERS with output circuit protection

The "T" series, all silicon solid state amplifiers are ruggedly designed and built for continuous duty in all types of sound applications. Efficient "Class B" design for continuous playing of background music. This design permits amplifier to remain in standby mode, drawing minimum current, when used in intercom or occasional voice paging applications.

Wide frequency response and conservative power ratings add to the versatility of these amplifiers whether the application calls for full frequency music reproduction

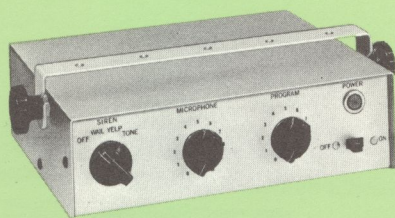
or powerful, clear voice response.

Output circuit protection is provided to prevent damage to the units in the event of accidental shorts or overloads.

The "T" series may be special-ordered from the factory with broadcast type, double mu-metal shielded, input transformers to provide balanced low impedance microphone inputs or 600 ohm line input. (See current price list for additional cost.)

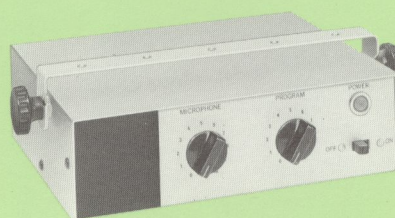
The "T" series is supplied with all 2N type transistors, facilitating field servicing and easy transistor substitution.

	T-150	T-300	T-600	T-1400
POWER OUTPUT:	15 Watts @ 5% THD	30 Watts @ 3% THD	60 Watts @ 3% THD	140 Watts @ 3% THD
INPUTS:	1 Mic HiZ 1 Aux HiZ (Lo Z or 600 ohms Optional)	4 Mics, HiZ 1 Aux, HiZ (Lo Z or 600 ohms Optional)	4 Mics, HiZ 1 Aux, HiZ (Lo Z or 600 ohms Optional)	4 Mics, HiZ 1 Aux, HiZ (Lo Z or 600 ohms Optional)
INPUT SENSITIVITY:	Mic, HiZ 3mV Aux, HiZ 115mV Mic, LoZ .5mV 600 ohms Line 100mV	Mic, HiZ 3mV Aux, HiZ 100mV Mic, LoZ .3mV 600 ohms Line 100mV	Mic, HiZ 3mV Aux, HiZ 100mV Mic, LoZ .3mV 600 ohms Line 100mV	Mic, HiZ 3mV Aux, HiZ 100mV Mic, LoZ .3mV 600 ohms Line 100mV
HUM & NOISE:	-70 db	-72 db	-75 db	-72 db
FREQUENCY RESPONSE:	30 Hz to 12 KHz, ± 3 db	30 Hz to 16 KHz, ± 3 db	30 Hz to 16 KHz, ± 3 db	30 Hz to 16 KHz, ± 3 db
OUTPUT:	4 ohms, 25V (41 ohms) 70V (330 ohms)	4 ohms, 8 ohms, 16 ohms, 25V (21ohms), 70V (167 ohms)	4 ohms, 8 ohms, 16 ohms, 70V (80 ohms)	4 ohms, (25V), 8 ohms, 16 ohms, 32 ohms (70V)
TONE CONTROLS:	15 db Cut @ 10 kHz	Bass, 15 db cut @ 100 Hz. Treble, 15 db cut @ 10 kHz.	Bass, 15 db cut @ 100 Hz. Treble, 15 db cut @ 10 kHz.	Bass, 15 db cut @ 100 Hz. Treble, 15 db cut @ 10 kHz.
POWER REQUIRED:	32W, 120 VAC, 60 Hz	100W, 120VAC, 60Hz	150W, 120VAC, 60Hz	325W, 120VAC, 60Hz
DIMENSIONS:	27/8"H, 9 1/4"W, 8 7/8"D	5 1/4"H, 16"W, 12"D	5 1/4"H, 16"W, 12"D	5 1/4"H, 16"W, 12"D
WEIGHT:	6 lbs.	18 lbs.	24 lbs.	34 lbs.



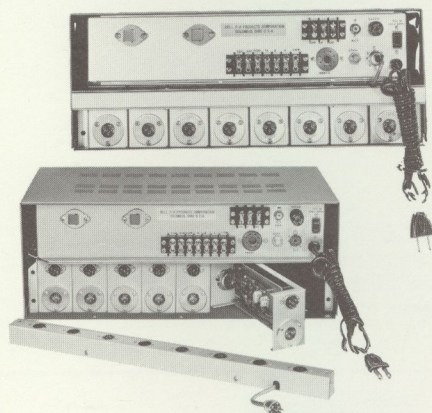
TM30S MOBILE AMPLIFIER

Compact, solid state, with universal mounting bracket. Power output 30 W (50 W with 3-mode, yelp, wail or continuous-tone siren). Power consumption: 12V, DC, 200 ma quiescent, 4a @ 30 W output. Freq. resp. 100 Hz to 10 kc. Mic sensitivity 1 mv; phono .2v; aux .1v. One each mic, and aux inputs, 4, 8 & 16 ohm outputs. Dimensions: 5 7/8" H, 8 1/2" W, 5" D.



TM30A MOBILE AMPLIFIER

Compact, solid state, with universal mounting bracket. Power output 30 W. Power consumption: 12V, DC, 200 ma quiescent, 4a @ 30 W output. Freq. resp. 100 Hz to 10 kc. Mic sensitivity 1 mv; phono .2v; aux .1v. One each mic, phono and aux inputs. 4, 8 & 16 ohm outputs. Dimensions: 5 7/8" H, 8 1/2" W, 5" D.



SOLID STATE MODULAR AMPLIFIERS

FEATURES:

- 1 to 8 modular input preamps.
- Thousands of possible combinations.
- Hundreds of modular arrangements.
- Dozens of basic applications.

GENERAL:

The new Bell P/A MOD Series modular amplifiers incorporate the TPA Series in a unique package concept that makes possible a virtually unlimited number of applications. The new line provides unprecedented flexibility in modules. The new MOD amps are full fidelity, heavy duty construction, conservatively designed to meet the most extreme performance requirements within each power range. As in the TPA Series, Bell P/A's high standards of quality prevail throughout the new modular line.

INPUT MODULES:

Due to the custom capability of the MOD series design, no standard preamps are supplied. The proper power amplifier should be selected based upon the area to be covered and the type and number of speakers needed. When ordering, specify the appropriate power amplifier (i.e. MOD 90B) and the input and control modules desired (i.e. 2-MML-1, 1, PMH-1). The amplifier will be factory assembled, tested, and shipped ready to operate.

The input and control modules are plug-in units, requiring no special tools or wiring, thus the input configuration may be expanded or changed in the field at any time.

Virtually any combination of from one to eight input and/or control modules may be used in the MOD series. Additional input capability may be added through use of the MIX-6B mixer package. Special input or con-

trol modules can be supplied to your specification.

The "stacking" principle utilized in Bell P/A MOD Series permits unusual design flexibility. Channel 1 (to extreme right, facing front of unit) is base channel, and all input modules are stacked to left. Special control modules, such as "priority paging" or "limiter" module, may be placed in any channel so as to mute or limit the gain of all inputs to the left of its position. In this way, it is possible to control from one to all seven other inputs.

Input modules can be supplied with any standard audio input connector, on special order. For complete information on input modules and specifications, see individual module spec sheets.

CUMULATIVE MIXING MODULES

- MMH-1 MicPreamp, HiZ
- MML-1 MicPreamp, Bal, LoZ
- PMH-1 Program Preamp, HiZ
- PMH-3 Mag Phono & Tape Head
- PML-1 Program Preamp, Bal 600 ohm
- TGM-2 Chime Tone Generator
- TGM-3 Yelp Siren
- TGM-4 Wall Siren
- TGM-5 Continuous Tone Siren

CONTROL-MIXING MODULES

- MMH-2 MicPreamp, HiZ Precedence Paging
- MML-2 MicPreamp, Bal LoZ Precedence Paging
- PML-2 Program Preamp, Bal. 600 ohm, Precedence Paging

CONTROL MODULES

- VLM-1 Volume Limiter
- RVM-1 Remote Volume Control

SPECIAL MODULES

- OMR-1 Record Output Module
- OML-1 Balanced 600 ohm Output Module
- MPS-1 Power Supply Module

	MOD-20B	MOD-45B	MOD-90B	MOD-200B
POWER OUTPUT:	20 W @ 5%	45 W @ 5%	90 W @ 5%	200 W @ 5%
REGULATION:	1 db @ 1000 Hz better than 3 db overall	1 db @ 1000 Hz better than 3 db overall	1 db @ 1000 Hz better than 3 db overall	1 db @ 1000 Hz better than 3 db overall
HUM & NOISE:	90 db below rated output	90 db below rated output	90 db below rated output	90 db below rated output
GAIN:	130 db mic 90 db program	130 db mic 90 db program	130 db mic 90 db program	130 db mic 90 db program
INPUT SENSITIVITY:	1 MV mic 100 MV program	1 MV mic 100 MV program	1 MV mic 100 MV program	1 MV mic 100 MV program
FREQUENCY RESPONSE:	20-20,000 Hz ± 1 db	20-20,000 Hz ± 1 db	20-20,000 Hz ± 1 db	20-20,000 Hz ± 1 db
OUTPUT IMPEDANCES:	4, 8, 16 Ω 41 (bal 25 V) Ω 333 (bal 70 V) Ω	4, 8, 16 Ω 21 (bal 25 V) Ω 167 (bal 70 V) Ω	4, 8, 16 Ω 80 (bal 70 V) Ω	4 (bal 25 V CT) Ω 8, 16, 32 (bal 70 V CT) Ω
POWER RESPONSE:	50-20,000 Hz, 15 W @ less than 2%	50-20,000 Hz, 30 W @ less than 2%	50-20,000 Hz, 60 W @ less than 2%	50-20,000 Hz, 150 W @ less than 2%
TONE CONTROL:	Treble, 12 db boost, 15 db cut 10,000 Hz Bass, 16 db boost, 14 db cut 50 Hz	Treble, 12 db boost, 15 db cut 10,000 Hz Bass, 16 db boost, 14 db cut 50 Hz	Treble, 12 db boost, 15 db cut 10,000 Hz Bass, 16 db boost, 14 db cut 50 Hz	Treble, 12 db boost, 15 db cut 10,000 Hz Bass, 16 db boost, 14 db cut 50 Hz
INPUTS:	Aux (hi Z hi level) bal 600 Ω w 2275 trans. Select input modules as required	Aux (hi Z hi level) bal 600 Ω w 2275 trans. Select input modules as required	Aux (hi Z hi level) bal 600 Ω w 2275 trans. Select input modules as required	Aux (hi Z hi level) bal 600 Ω w 2275 trans. Select input modules as required
POWER CONSUMPTION:	50 W, 120 V, 60 Hz	100 W, 120 V, 60 Hz	150 W, 120 V, 60 Hz	350 W, 120 V 60 Hz
DIMENSIONS:	6 $\frac{1}{4}$ " H, 16 $\frac{1}{4}$ " W, 8 $\frac{1}{2}$ " D	6 $\frac{1}{4}$ " H, 16 $\frac{1}{4}$ " W, 8 $\frac{1}{2}$ " D	7 $\frac{3}{4}$ " H, 16 $\frac{1}{4}$ " W, 10 $\frac{1}{4}$ " D	7 $\frac{3}{4}$ " H, 16 $\frac{1}{4}$ " W, 10 $\frac{1}{4}$ " D
WEIGHT:	19 lbs	20 lbs	25 lbs	32 lbs

BELL COMMERCIAL SOUND COMPONENTS

SOLID STATE POWER AMPLIFIERS

FEATURES:

- All silicon, solid state circuitry.
- Full automatic output circuit protection (with indicator light).
- Full bass and treble control.
- 4, 8 and 16 ohm output, bal. 25 & 70 V line.
- Available in package or rack mount.

GENERAL:

TPA Series amplifiers are heavy duty, full fidelity. Conservatively designed to meet the most extreme performance requirements within each power range. Special low-noise FET transistors in front end, and four feedback loops for super stable operation and low driving impedance. Rugged aluminum "beam" type chassis combines strength with light weight. Extremely efficient transistor design permits constant use with low power consumption.

OUTPUT CIRCUIT PROTECTION:

TPA Series amplifiers incorporate the exclusive, fully automatic Bell P/A sensor circuit which protects output transistors against overload or short circuit. Front panel amber light gives visual indication of any such condition. When condition is corrected, sensor circuit automatically and immediately restores amplifier to normal function. No manual reset or time delay required. This feature is invaluable when replacing amplifier in an old system where load and condition of wiring are not known, or in event of accidental shorting.

CONTROL FEATURES:

Full bass and treble controls, as well as master gain control on front panel permitting use of amplifier as power booster for tape playback, phonograph, tuner, or preamp. Two can be used for stereo systems. In a multi-function sound system, amplifiers can be adjusted to produce tonal quality required by each speaker array or to acoustical requirements of each particular area.

Input level to amplifier may be adjusted on rear panel to make unit compatible with nearly any program source.

Provision for a plug-in balanced 600 ohm input transformer makes this amplifier ideal for telephone paging systems or as a booster amplifier for paging with an intercom system.

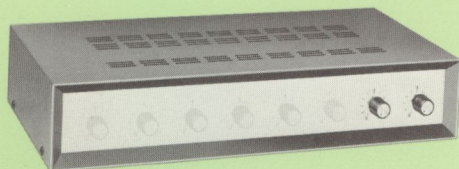


TPA SERIES
Models TPA-20 and TPA-45



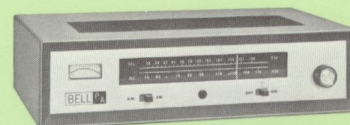
TPA SERIES
Models TPA-90 and TPA-200

	TPA-20	TPA-45	TPA-90	TPA-200
POWER OUTPUT:	20 W @ 5%	45 W @ 5%	90 W @ 5%	200 W @ 5%
REGULATION:	1 db @ 1000 Hz better than 3 db overall	1 db @ 1000 Hz better than 3 db overall	1 db @ 1000 Hz better than 3 db overall	1 db @ 1000 Hz better than 3 db overall
HUM & NOISE:	90 db below rated output	90 db below rated output	90 db below rated output	90 db below rated output
GAIN	75 db aux input	75 db aux input	75 db aux input	75 db aux input
INPUT SENSITIVITY:	150 MV	150 MV	150 MV	150 MV
FREQUENCY RESPONSE:	20-20,000 Hz ± 1 db	20-20,000 Hz ± 1 db	20-20,000 Hz ± 1 db	20-20,000 Hz ± 1 db
OUTPUT IMPEDANCE:	4, 8, 16 Ω 41 (bal 25 V) Ω 333 (bal 70 V) Ω	4, 8, 16 Ω 21 (bal 25 V) Ω 167 (bal 70 V) Ω	4, 8, 16 Ω 80 (bal 70 V) Ω	4 (bal 25 V CT) Ω 8, 16, 32 (bal 70 V CT) Ω
POWER RESPONSE:	50-20,000 Hz, 15 W @ less than 2%	50-20,000 Hz, 30 W @ less than 2%	50-20,000 Hz, 60 W @ less than 2%	50-20,000 Hz, 150 W @ less than 2%
TONE CONTROL:	Treble, 12 db boost, 15 db cut 10,000 Hz Bass, 16 db boost, 14 db cut to 50 Hz	Treble, 12 db boost, 15 db cut 10,000 Hz Bass, 16 db boost, 14 db cut to 50 Hz	Treble, 12 db boost, 15 db cut 10,000 Hz Bass, 16 db boost, 14 db cut to 50 Hz	Treble, 12 db boost, 15 db cut 10,000 Hz Bass, 16 db boost, 14 db cut to 50 Hz
INPUTS:	Aux (hi Z hi level) bal 600 Ω w 2275 trans.(option)	Aux (hi Z hi level) bal 600 Ω w 2275 trans.(option)	Aux (hi Z hi level) bal 600 Ω w 2275 trans.(option)	Aux (hi Z hi level) bal 600 Ω w 2275 trans.(option)
POWER CONSUMPTION:	50 W, 120 V, 60 Hz	100 W, 120 V, 60 Hz	150 W, 120 V, 60 Hz	350 W, 120 V, 60 Hz
DIMENSIONS:	3 1/4" H, 16 1/4" W, 8 1/2" D	3 1/4" H, 16 1/4" W, 8 1/2" D	4 3/4" H, 16 1/4" W, 10 1/4" D	4 3/4" H, 16 1/4" W, 10 1/4" D
WEIGHT:	16 lbs	17 lbs	22 lbs	29 lbs



MIXABLE MIXER

MIX-6 permits custom design of mixer/preamp for integration of telephone, microphone, program preamps and signalling or alarm tone generators. Control functions (priority paging, remote volume control, volume limiting, etc.) are also available. The MIX-6B consists of one MPS-1 Power Supply Module and one OMR-1 Output Module. (OML-1 balanced Output module optional). MIX-12 is two MIX-6's in a single package for up to 6 channel stereo mixing. No input or control modules supplied. (See modules available, Page 3).



SOLID STATE AM/FM TUNER

Adds on to any p.a. system. FM: 3 μ V for 30 db, quieting; 200 kc bandwidth; 40 db image rejection; 50 db signal-to-noise min.; wideband ratio detector; 3 IF stages full limiting at 15 μ V; 300 ohms bal., 75 ohm unbal. antenna. AM: 10 μ V sensitivity, 8 kc bandwidth (@ 6 db) sensitivity; 10 kc whistle filter; 0.5 RMS min. audio output. Dim.: 4" h, 13 3/4" w, 8 3/4" d. Ship wt. 12 lbs.

BELL COMMERCIAL SOUND COMPONENTS

AUTOMATIC LIMITING AMPLIFIERS



Specially designed for telephone or intercom paging applications where a number of paging sources cause wide variations in input signal level. 30 db adjustable input limiting results in smooth, consistent power output. These units are designed for 24-hour duty and are available in 19-inch rack mount.

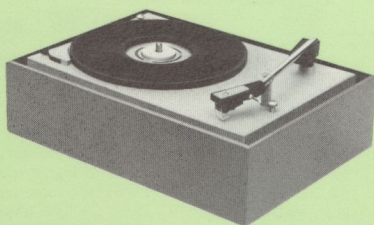
	ALA-20	ALA-45	ALA-90	ALA-200
POWER OUTPUT:	20 W @ 5%	45 W @ 5%	90 W @ 5%	200 W @ 5%
REGULATION:	1 db @ 1000 Hz better than 3 db overall	1 db @ 1000 Hz better than 3 db overall	1 db @ 1000 Hz better than 3 db overall	1 db @ 1000 Hz better than 3 db overall
INPUT SENSITIVITY:	150 MV	150 MV	150 MV	150 MV
FREQUENCY RESPONSE:	20-20,000 Hz ± 1 db	20-20,000 Hz ± 1 db	20-20,000 Hz ± 1 db	20-20,000 Hz ± 1 db
OUTPUT IMPEDANCE:	4, 8, 16 Ω 41 (bal 25 V) Ω 333 (bal 70 V) Ω	4, 8, 16 Ω 21 (bal 25 V) Ω 167 (bal 70 V) Ω	4, 8, 16 Ω 80 (bal 70 V) Ω	4 (bal 25 V CT) Ω 8, 16, 32 (bal 70 V CT) Ω
INPUTS:	Aux (hi Z hi level) bal 600 Ω w #2275 trans.	Aux (hi Z hi level) bal 600 Ω w #2275 trans.	Aux (hi Z hi level) bal 600 Ω w #2275 trans.	Aux (hi Z hi level) bal 600 Ω w #2275 trans.
POWER CONSUMPTION:	50 W, 120 V, 60 Hz	100 W, 120 V, 60 Hz	150 W, 120 V, 60 Hz	350 W, 120 V, 60 Hz
DIMENSIONS:	3 $\frac{1}{4}$ " H, 16 $\frac{1}{4}$ " W, 8 $\frac{1}{2}$ " D	3 $\frac{1}{4}$ " H, 16 $\frac{1}{4}$ " W, 8 $\frac{1}{2}$ " D	4 $\frac{3}{4}$ " H, 16 $\frac{1}{4}$ " W, 10 $\frac{1}{4}$ " D	4 $\frac{3}{4}$ " H, 16 $\frac{1}{4}$ " W, 10 $\frac{1}{4}$ " D
WEIGHT:	16 lbs	17 lbs	22 lbs	29 lbs

STONE GENERATOR AMPLIFIERS



These amplifiers are designed to produce high power audio siren or chime tones. Tones are actuated by any external closed contacts, such as push button switch, relay or clock. Units can be supplied to switch "on" when an "open" circuit is present, such as a break in a security loop. Designed for 24-hour duty and available in 19-inch rack mount. 120 VAC or 24 VDC. Siren tones available are continuous tone, yelp and wail.

	TGA-20	TGA-45	TGA-90	TGA-200
POWER OUTPUT:	20 Watts	45 Watts	90 Watts	200 Watts
TRIGGER:	Normally closed contacts; open, optional	Normally closed contacts; open, optional	Normally closed contacts; open, optional	Normally closed contacts; open, optional
OUTPUTS:	4, 8, 16 ohms, 25V (41 ohms), 70V (333 ohms)	4, 8, 16 ohms, 70V (167 ohms)	4, 8, 16 ohms, 70V (80 ohms)	4, 8, 16 ohms, 25V (4 ohms), 70V (32 ohms)
POWER CONSUMPTION:	50 Watts @ 120 VAC, 60 Hz	100 Watts @ 120 VAC, 60 Hz	150 Watts @ 120 VAC, 60 Hz	350 Watts @ 120 VAC, 60 Hz
DIMENSIONS:	6 $\frac{1}{4}$ " H, 16 $\frac{1}{4}$ " W, 8 $\frac{1}{2}$ " D	6 $\frac{1}{4}$ " H, 16 $\frac{1}{4}$ " W, 8 $\frac{1}{2}$ " D	7 $\frac{3}{4}$ " H, 16 $\frac{1}{4}$ " W, 10 $\frac{1}{4}$ " D	7 $\frac{3}{4}$ " H, 16 $\frac{1}{4}$ " W, 10 $\frac{1}{4}$ " D
WEIGHT:	16 lbs.	17 lbs.	22 lbs.	29 lbs.



PHONO TURNTABLE

Record speeds 15, 33 $\frac{1}{3}$, 45, 78 rpm. Quality turnover cartridge, dual stylus. Size: 4 $\frac{1}{2}$ " h, 15" w, 10" d. Monaural reproduction; plays mono or stereo records. Built-in 45 rpm adapter for use with 7" records.

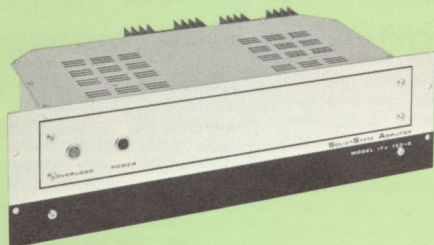


PORTABLE PA SPEAKER/CARRYING CASE

Accommodates most package amplifiers. Contains dual 12", 25W, 8 ohm speakers, two 25' cables with plugs. 22" h, 17 $\frac{3}{4}$ " w, 15 $\frac{1}{4}$ " d.

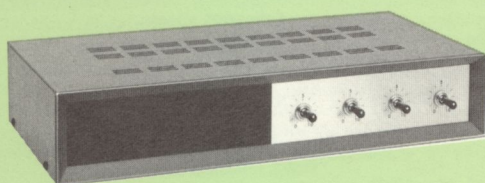
BELL P/A CUSTOMIZING

If you have a complex*, or troublesome, sound application problem, ask about our customizing service. Below are just a few of our special solutions to unusual audio problems.



POWER AMP (less controls):

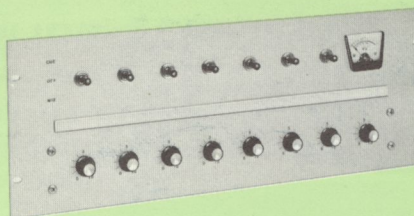
For applications where all controls must be hidden to prevent tampering or unauthorized adjustment. Amplifiers can be supplied in standard 19" panels, with all controls located on rear chassis.



SWITCH CONTROL:

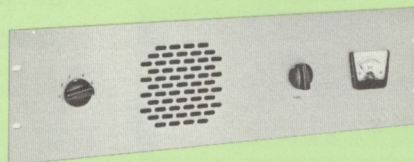
Special modular switch control cabinets, supplied with 1 to 15 switches for zone paging, input selection, or remote relay control. Also available in standard 19" rack panel.

*On the other hand, there are 16 Bell P/A "Simple Systems" . . . pre-engineered at the factory for average sound installations. Amplifiers, mics and speakers are matched, and ready for operation.



CUEING MIXER:

Provides two 600-ohm inputs and 4 balanced low microphone inputs. Each input may be individually 'cued' before switching into output. Levels may be predetermined and monitored with VU meter and head phones, before switching line output to power amp, tape recorder, or broadcast station. Output is balanced or unbalanced 600-ohm. (Many other input configurations can be specified from standard selection of input and control modules used in Bell P/A 'MOD' series.)

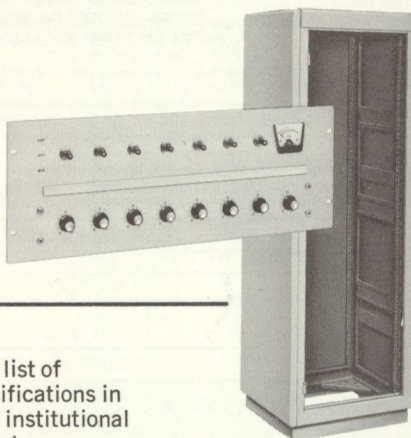


MONITOR PANEL:

Standard 19" x 5 1/4" rack panel, with VU meter, 4" speaker (with 70V transformer), volume control, and amplifier selector switch for monitoring output of one to five power amplifiers.

RACK PANELING

All Bell P/A power and program units are available without cabinets and equipped with a special front panel for standard 19" rack mounting. This permits the combining of several Bell P/A units — such as an amplifier, tuner or record player — into a completely integrated, compact sound system. Console installations allow for easy future expansion of the system.



Over 42 years of sound engineering experience . . . and a long list of internationally-known customers . . . attest to Bell P/A's qualifications in the audio field. Dozens of famous commercial, industrial and institutional organizations are among the many users of Bell P/A equipment and services. (Names are available on request.)

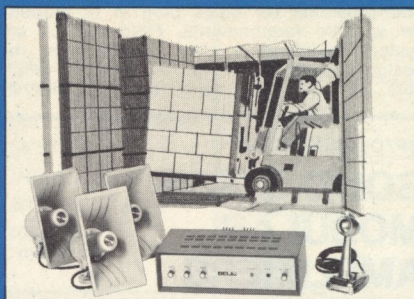
BELL

AUDIO SYSTEMS, INC.
994 Freeway Drive North, Bldg. No. 6
Columbus, Ohio 43229
Phone: 614-846-2766

BELL PROFESSIONAL AUDIO

"FINEST IN COMMERCIAL SOUND SYSTEMS SINCE 1932"

**FACTORIES
WAREHOUSES
RETAIL STORES
OFFICES
ARENAS**



**VOICE PAGING
ALARM AND SIGNAL
BACKGROUND MUSIC
PUBLIC ADDRESS**

PRODUCTS • PLANNING • SERVICE • ENGINEERING



MR/Manufacturer

The purpose of this presentation is to familiarize you with the broad scope of functional advantages inherent in a well planned sound and communication system in modern commercial, industrial, and institutional buildings. Communication is vital to the efficient operation of nearly any organization for it provides the basis for effective movement of manpower and materials, locates personnel on the move, saves time and steps.

Bell P/A has been designing, manufacturing and planning hard wired audio systems since 1932. Listed below are a few of the companies that we have provided systems for, whose names you will recognize. In addition there are other clients who are too numerous to list, but in all probability include Bell users in your own area.

Bendix Corporation
Control Data
General Mills
International Harvester
I B M
Lincoln National Forest
Monsanto
Nationwide Insurance
National Southwire Aluminum
Norfolk Shipbuilding
North American Rockwell
North Central Airlines

Ohio Dept. of Transportation
Owen's Corning Fiberglass Co.
Piper Industries
Rockwell International
Ross Laboratories
S K F Industries
Union Carbide
United States Army
United States Coastguard
United States Steel
Uniroyal Incorporated

SERVICE TO ARCHITECTS AND ENGINEERS

Bell P/A offers a variety of services to assist in planning and specification of sound and communication systems. These services include:

1. Complete technical data sheets on products, as well as application and layout guides.
2. Free lay out service upon receipt of plans and outline of functional requirements.
3. Special product requirements may be quoted based upon specifications submitted.
4. Field system engineering service may be provided on a scheduled basis. Cost of this service shall be quoted upon receipt of a written request for site survey, sound level measurements, or other technical service and shall include time and travel expenses.

PP/Product Presentation

TYPES OF SYSTEMS

A. Basic Paging

1. Microphone paging
2. Telephone paging
3. Zone or area page selection
4. Talk-back from selected speakers

B. Control Functions

These functions may be used to improve basic paging systems and may be integrated into the systems on a selective basis.

1. Volume limiting, to provide automatic level control over one or more inputs.
2. Remote volume control, to provide remote level control over one or more inputs.
3. Muting control, to provide cut off of background music or other input signals to provide priority paging.
4. Output signal modules to interface with remote slave amplifiers, recorders, or telephone line to broadcast station or other remote facility.

C. Signal/Alarm Systems

Tone generators can be supplied to provide a wide variety of sounds from soft chime tones to vibrant siren signals, to permit the sound system to be used as a signal/alarm system. The tone generators are actuated by any set of closed contacts such as a relay, smoke/heat sensor, time clock, or push button. Tone generators can also be supplied to actuate on an open circuit, such as a break in a security loop.

Signals may be programmed to indicate zone affected, by impulsing tone digitally from zone detectors, on timed intervals.

D. Slave Systems

A simple way to provide additional power from an existing system into a new building or addition is to provide a slave power amplifier equipped with a special input pad to tap the speaker line of the operating system, thus requiring only additional speakers in the new area.

E. Anti-Feedback Systems

Several new techniques for controlling acoustic feedback are now possible through the use of new integrated circuit technology. If you are confronted with difficult feedback problems due to poor acoustics or an unusually "live" room, request special "Anti-feedback Application" data sheets from Bell P/A.

F. Automatic Volume Control Systems

In many public buildings and industrial areas it is necessary to adjust the volume level of the sound system to compensate for wide variations in the ambient noise level in the building. Bell P/A can provide special systems to "sample" ambient noise and automatically adjust the sound system to increase or decrease in relation to the ambient level. Request special "Automatic Noise Level Control Systems" data sheets from Bell P/A.

G. Background Music Systems

The need for background music is quite common in sound installations today and Bell P/A's full fidelity components provide excellent reproduction of the entire frequency range of music. The limiting factor in high fidelity music reproduction for commercial/industrial systems is normally the type of speaker selected. Bell P/A can supply input preamps to match any music source, as well as automatic cut off of the music during paging.

H. Explosion Proof Systems

Certain industries require explosion proof speakers in areas where volatile materials are used. Submit specification requirements for written proposal.

ADVANTAGES OF MODULAR CONSTRUCTION

The flexible design capability of modular construction makes it possible to create custom sound systems at competitive prices by manufacturing the components of the system on a mass production, standard basis

and providing for quick plug in of modules for specific requirements. Field service and system modification also benefit from this design approach. All Bell P/A modular amplifiers are designed using state of the art

silicon transistors and conservatively rated for 24 hours performance. Low power consumption of class B circuitry saves electricity.

OP/Overall Product

SOLID STATE MODULAR AMPLIFIERS

FEATURES:

- 1 to 8 modular input preamps.
- Thousands of possible combinations.
- Hundreds of modular arrangements.
- Dozens of basic applications.

GENERAL:

The new Bell P/A MOD Series modular amplifiers incorporate the TPA Series in a unique package concept that makes possible a virtually unlimited number of applications. The new line provides unprecedented flexibility in modules. The new MOD amps are full fidelity, heavy duty construction, conservatively designed to meet the most extreme performance requirements within each power range. As in the TPA Series, Bell P/A's high standards of quality prevail throughout the new modular line.

INPUT MODULES:

Due to the custom capability of the MOD series design, no standard preamps are supplied. The proper power amplifier should be selected based upon the area to be covered and the type and number of speakers needed. When ordering, specify the appropriate power amplifier (i.e. MOD 90B) and the input and control modules desired (i.e. 2-MML-1, 1, PMH-1). The amplifier will be factory assembled, tested, and shipped ready to operate. The input and control modules are plug-in units, requiring no special tools or wiring, thus the input configuration may be expanded or changed in the field at any time.

Virtually any combination of from one to eight input and/or control modules may be used in the MOD series. Additional input capability may be added through use of the MIX-6B mixer package. Special input or control modules can be supplied to your speci-

cation. The "stacking" principle utilized in Bell PA/MOD Series permits unusual design flexibility. Channel 1 (to extreme right, facing front of unit) is base channel, and all input modules are stacked to left. Special control modules, such as "priority paging" or "limiter" module, may be placed in any channel so as to mute or limit the gain of all inputs to the left of its position. In this way, it is possible to control from one to all seven other inputs.

Input modules can be supplied with any standard audio input connector, on special order. For complete information on input modules and specifications, see individual module spec sheets.

CUMULATIVE MIXING MODULES

- MMH-1 MicPreamp, HiZ
- MML-1 MicPreamp, Bal, LoZ
- PMH-1 Program Preamp, HiZ
- PMH-3 Mag Phono & Tape Head
- PML-1 Program Preamp, Bal 600 ohm
- TGM-2 Chime Tone Generator
- TGM-3 Yelp Siren
- TGM-4 Wail Siren
- TGM-5 Continuous Tone Siren

CONTROL-MIXING MODULES

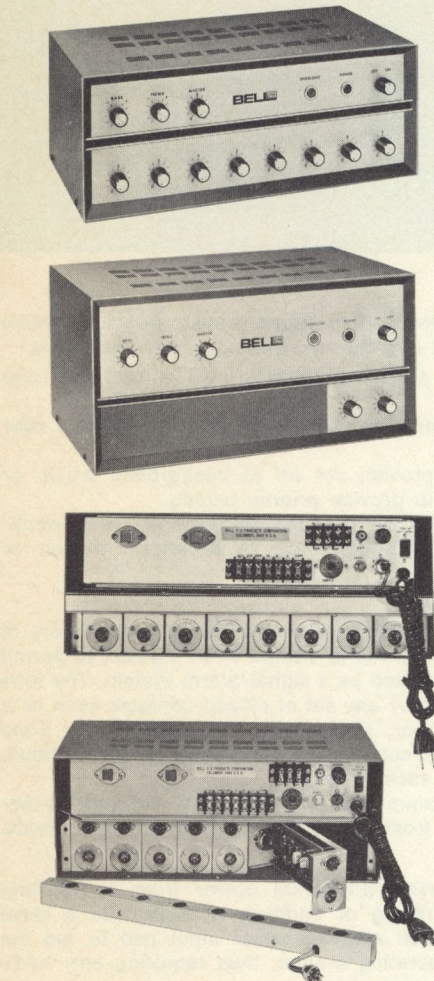
- MMH-2 MicPreamp, HiZ Precedence Paging
- MML-2 MicPreamp, Bal LoZ Precedence Paging
- PML-2 Program Preamp, Bal 600 ohm, Precedence Paging

CONTROL MODULES

- VLM-1 Volume Limiter
- RVM-1 Remote Volume Control

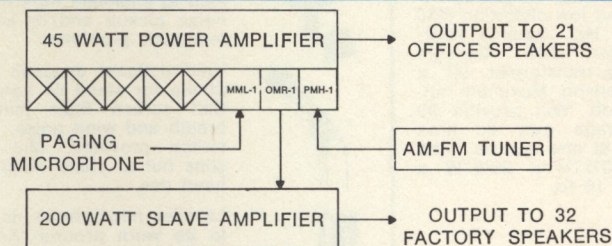
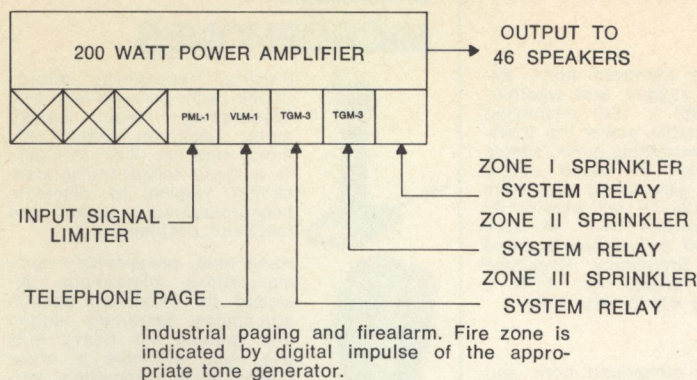
SPECIAL MODULES

- OMR-1 Record Output Module
- OML-1 Balanced 600 ohm Output Module
- MPS-1 Power Supply Module

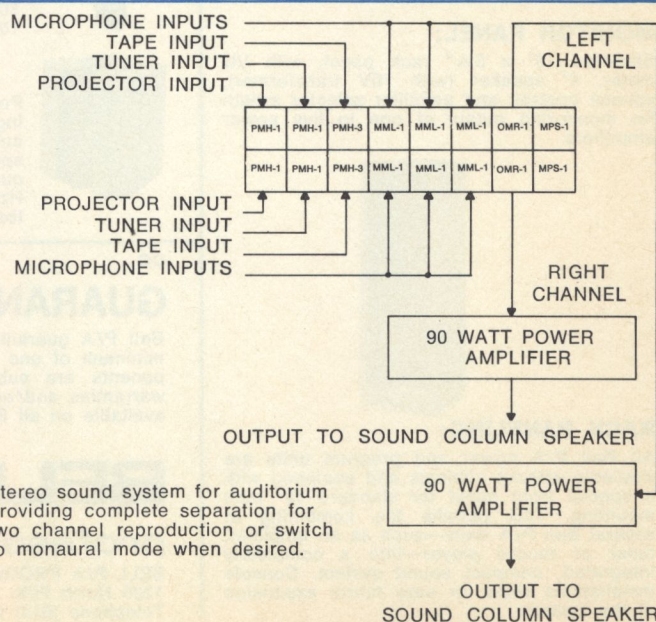
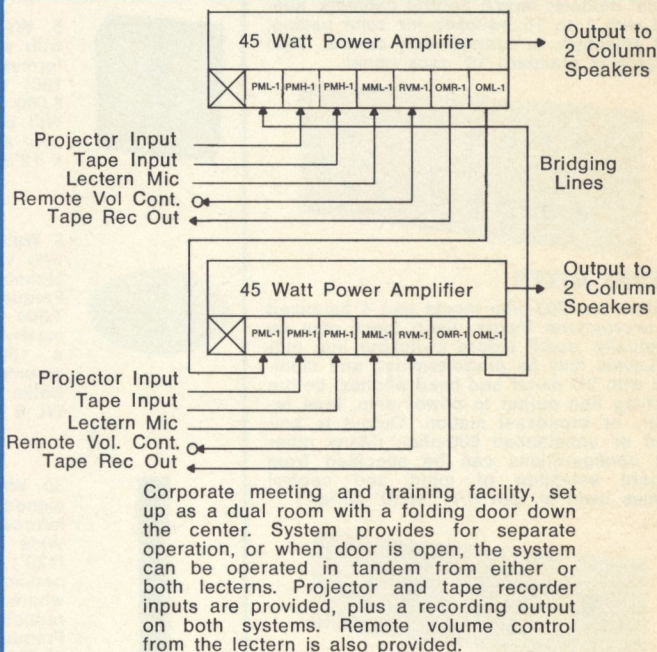
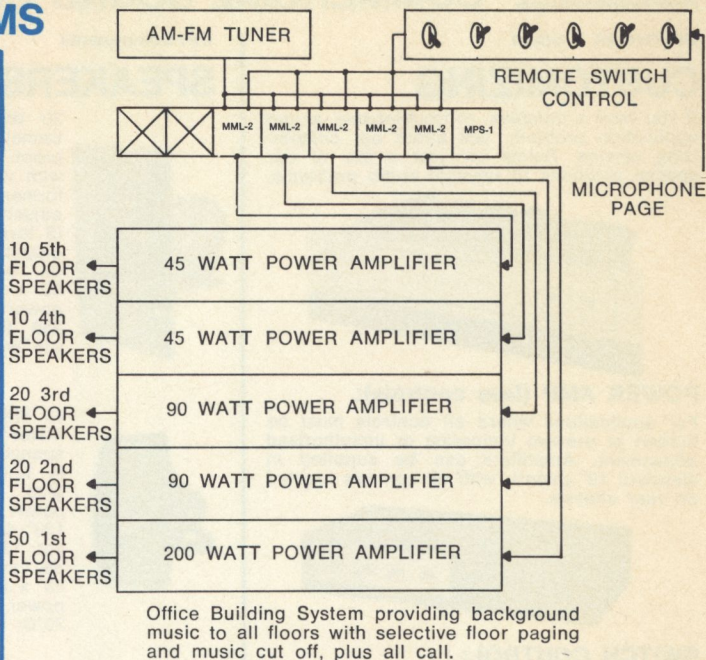
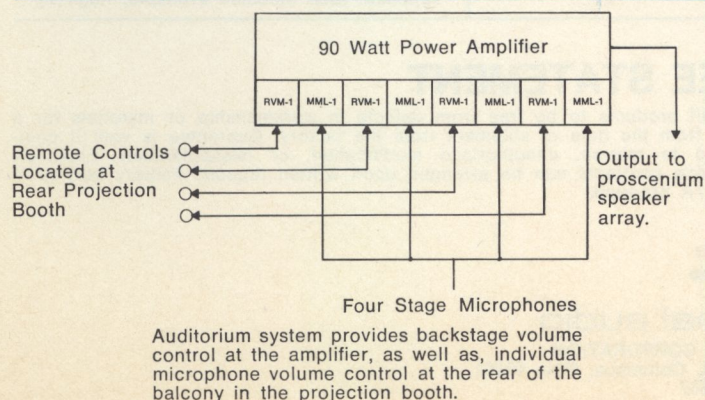
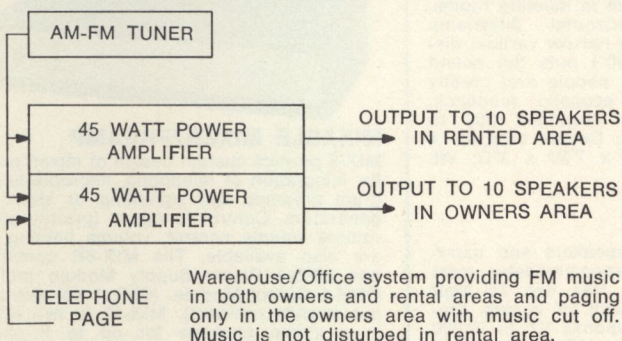
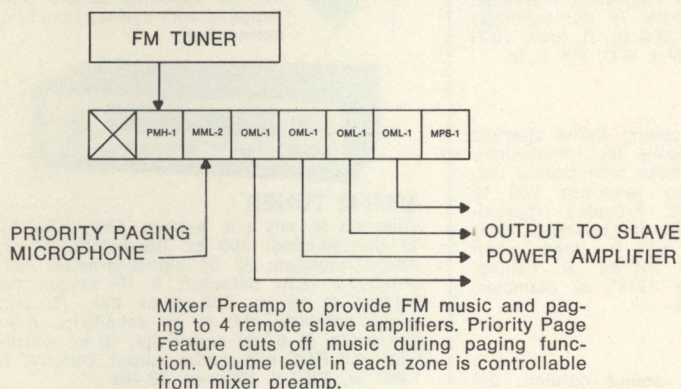


	MOD-20B	MOD-45B	MOD-90B	MOD-200B
POWER OUTPUT:	20 W @ 5%	45 W @ 5%	90 W @ 5%	200 W @ 5%
REGULATION:	1 db @ 1000 Hz better than 3 db overall	1 db @ 1000 Hz better than 3 db overall	1 db @ 1000 Hz better than 3 db overall	1 db @ 1000 Hz better than 3 db overall
HUM & NOISE:	90 db below rated output	90 db below rated output	90 db below rated output	90 db below rated output
GAIN:	130 db mic 90 db program	130 db mic 90 db program	130 db mic 90 db program	130 db mic 90 db program
INPUT SENSITIVITY:	1 MV mic 100 MV program	1 MV mic 100 MV program	1 MV mic 100 MV program	1 MV mic 100 MV program
FREQUENCY RESPONSE:	20-20,000 Hz ± 1 db	20-20,000 Hz ± 1 db	20-20,000 Hz ± 1 db	20-20,000 Hz ± 1 db
OUTPUT IMPEDANCES:	4, 8, 16 Ω 41 (bal 25 V) Ω 333 (bal 70 V) Ω	4, 8, 16 Ω 21 (bal 25 V) Ω 167 (bal 70 V) Ω	4, 8, 16 Ω 80 (bal 70 V) Ω	4 (bal 25 V CT) Ω 8, 16, 32 (bal 70 V CT) Ω
POWER RESPONSE:	50-20,000 Hz, 15 W @ less than 2%	50-20,000 Hz, 30 W @ less than 2%	50-20,000 Hz, 60 W @ less than 2%	50-20,000 Hz, 150 W @ less than 2%
TONE CONTROL:	Treble, 12 db boost, 15 db cut 10,000 Hz Bass, 16 db boost, 14 db cut 50 Hz	Treble, 12 db boost, 15 db cut 10,000 Hz Bass, 16 db boost, 14 db cut 50 Hz	Treble, 12 db boost, 15 db cut 10,000 Hz Bass, 16 db boost, 14 db cut 50 Hz	Treble, 12 db boost, 15 db cut 10,000 Hz Bass, 16 db boost, 14 db cut 50 Hz
INPUTS:	Aux (hi Z hi level) bal 600 Ω w 2275 trans. Select input modules as required	Aux (hi Z hi level) bal 600 Ω w 2275 trans. Select input modules as required	Aux (hi Z hi level) bal 600 Ω w 2275 trans. Select input modules as required	Aux (hi Z hi level) bal 600 Ω w 2275 trans. Select input modules as required
POWER CONSUMPTION:	50 W, 120 V, 60 Hz	100 W, 120 V, 60 Hz	150 W, 120 V, 60 Hz	350 W, 120 V 60 Hz
DIMENSIONS:	6 $\frac{1}{4}$ " H, 16 $\frac{1}{4}$ " W, 8 $\frac{1}{2}$ " D	6 $\frac{1}{4}$ " H, 16 $\frac{1}{4}$ " W, 8 $\frac{1}{2}$ " D	7 $\frac{3}{4}$ " H, 16 $\frac{1}{4}$ " W, 10 $\frac{1}{4}$ " D	7 $\frac{3}{4}$ " H, 16 $\frac{1}{4}$ " W, 10 $\frac{1}{4}$ " D
WEIGHT:	19 lbs	20 lbs	25 lbs	32 lbs

TYPICAL MODULAR AUDIO SYSTEMS



Industrial paging system providing FM music and paging to the office and *paging only* to the factory.

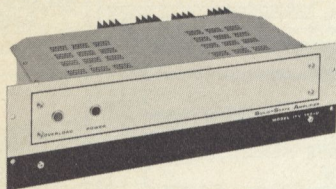


BELL^{p/a} COMMERCIAL SOUND COMPONENTS

OP/Overall Product

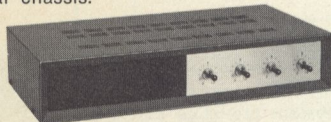
CUSTOMIZING

If you have a complex, or troublesome, sound application problem, ask about our customizing service. Below are just a few of our special solutions to unusual audio problems.



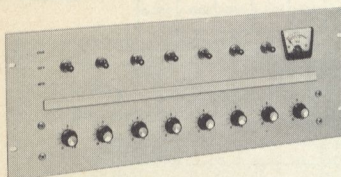
POWER AMP (less controls):

For applications where all controls must be hidden to prevent tampering or unauthorized adjustment. Amplifiers can be supplied in standard 19" panels, with all controls located on rear chassis.



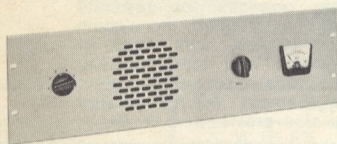
SWITCH CONTROL:

Special modular switch control cabinets, supplied with 1 to 15 switches for zone paging, input selection, or remote relay control. Also available in standard 19" rack panel.



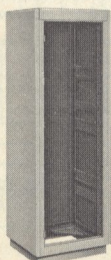
CUEING MIXER

Provides two 600-ohm inputs and 4 balanced low microphone inputs. Each input may be individually 'cued' before switching into output. Levels may be predetermined and monitored with VU meter and head phones, before switching line output to power amp, tape recorder, or broadcast station. Output is balanced or unbalanced 600-ohm. (Many other input configurations can be specified from standard selection of input and control modules used in Bell P/A 'MOD' series.)



MONITOR PANEL:

Standard 19" x 5 1/4" rack panel, with VU meter, 4" speaker (with 70V transformer), volume control, and amplifier selector switch for monitoring output of one to five power amplifiers.

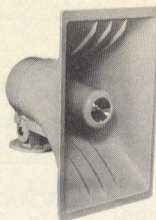


RACK PANELING:

All Bell P/A power and program units are available without cabinets and equipped with a special front panel for standard 19" rack mounting. This permits the combining of several Bell P/A units—such as an amplifier, tuner or record player—into a completely integrated, compact sound system. Console installations allow for easy future expansion of the system.

CP/Components

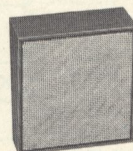
SPEAKERS



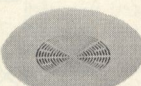
30 Watt reentrant horn. Extremely rugged and weather-proof. 90° x 120° dispersion with variable power tap transformer permitting quick, simple adjustment of sound output (5 level selections). Maximum output 124 db. will provide 90 db. coverage over an area 50' x 100' at one half its rated power. Frequency Response 250 to 10,000 Hz; 11"H x 6 1/2"W x 8 1/2"D; Wt. 7 lb.



30 Watt compound horn and driver for wide frequency response and low distortion (150 to 12,000 Hz). Durable fiberglass outer shell. Variable power tap transformer. 90° x 120° dispersion. Maximum output 120 db. Will provide 90 db. coverage over an area 50' x 80' at one half its rated power. 10 1/2"H x 20 1/2"W x 20"D; Wt. 16 lb.



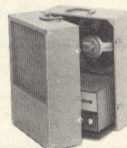
5 Watt wall baffle speaker with variable power tap transformer and volume control. 180° dispersion, with 100 to 8,000 Hz frequency response. Will provide 75 db. coverage over a 1,000 sq. ft. area. 10"H x 12 1/2"W x 4"D; Wt. 5 lb.



5 Watt ceiling baffle speaker with variable tap transformer. Mounts flush with ceiling tile. Frequency response 200 to 7,500 Hz. Provides approximately 70 db. coverage over a 150 sq. ft. area when mounted in an 8' ceiling. Baffle is 12 1/2" in diameter; Wt. 6 lb.



30 Watt sound column, designed primarily for voice reinforcement in meeting rooms. Wide horizontal dispersion (120°) and narrow vertical dispersion (30°) puts the sound where the people are; greatly reducing acoustic feedback. Frequency response 200 to 10,000 Hz; Covers area 30' x 60'; 30"H x 7"W x 3"D; Wt. 10 lb.



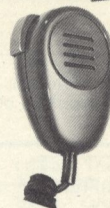
Portable speakers and carrying case accommodates most amplifiers. Has two 25 Watt speakers with 25' cables. Frequency response 100 to 10,000 Hz. 22"H x 18"W x 15"D. 33 lbs.

CP/Components

MICROPHONES



Paging/Dispatching microphone with press-to-talk bar. Telescoping height adjustment. Lock on feature for hands free use. Also available in a close talking/noise cancelling version to eliminate background noise pickup and feedback problems.



Hand held, press-to-talk communications microphone designed for maximum speech articulation. Extremely rugged and durable for heavy duty use. Also available in close talking/noise cancelling version to eliminate high ambient noise pickup and/or acoustic feedback problems.



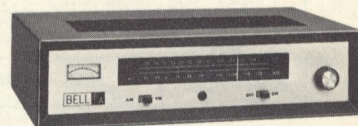
Unidirectional dynamic microphone for stand or hand use. Ball screen filter minimizes breath and wind noise. Off/on switch provided. Mic easily slips out of stand adapter for hand use.



Lavalier microphone designed to be worn around the neck for hands free use. Excellent for meetings and presentations.

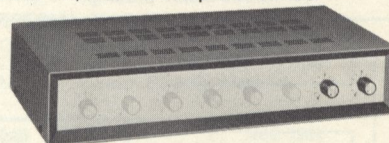


Microphone extension cables cut to specified length and supplied with system matching connectors.



AM/FM TUNER

Adds on to any p.a. system. FM: 3 μ v for 30 db. quieting; 200 kc bandwidth; 40 db image rejection; 50 db signal-to-noise min.; wideband ratio detector; 3 IF stages full limiting at 15 μ v; 300 ohms bal., 75 ohm unbal. antenna. AM: 10 μ v sensitivity, 8 kc bandwidth @ 6 db sensitivity; 10 kc whistle filter; 0.5 RMS min. audio output. Dim.: 4" h, 13 3/4" w, 8 3/4" d. Ship wt. 12 lbs.



MIXABLE MIXER/PREAMP

MIX-6 permits custom design of mixer/preamp for integration of telephone, microphone, program preamps and signalling or alarm tone generators. Control functions (priority paging, remote volume control, volume limiting, etc.) are also available. The MIX-6B consists of one MPS-1 Power Supply Module and one OMR-1 Output Module. (OML-1 balanced output module optional). MIX-12 is two MIX-6's in a single package for up to 6 channel stereo mixing. No input or control modules supplied. (See modules available, Page 2).

CC

GUARANTEE STATEMENT

Bell P/A guarantees all products to be free from defects in workmanship or materials for a minimum of one year from the date of shipment from the factory. Guarantee is void if components are subjected to misuse, unauthorized modification, or misapplication. Extended warranties and/or service contracts can be arranged upon written request. Factory service is available on all Bell P/A products.

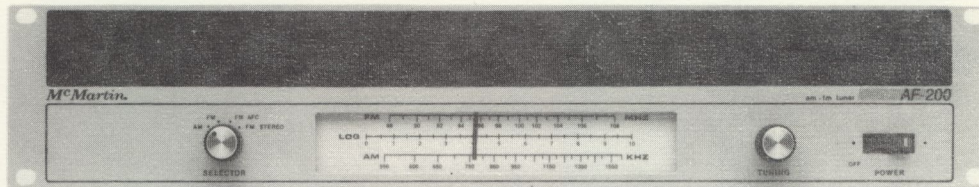
BELL^{p/a}

professional audio

BELL P/A PRODUCTS CORPORATION
1220 North Fifth Street, Columbus, Ohio 43201
Telephone (614) 299-1487

AM/FM FM STEREO TUNER

AF-200



FM AFC
BETWEEN STATION FM SQUELCH
INDEPENDENT MONO/STEREO OUTPUTS
INTEGRATED CIRCUIT FM STEREO DECODER
INTEGRATED CIRCUIT FM IF AND DETECTOR WITH 10.7 MHz BLOCK FILTER

The AF-200 is a high performance, AM/FM/FM stereo, tuner. All silicon transistor and integrated circuit design insures long life and trouble-free performance over a wide range of ambient operating conditions. The FM AFC, regulated power supply and wide-range AGC circuits provide long term stability without readjustment regardless of signal, temperature, or line voltage variations.

The RF amplifier front-end on both the AM and FM sections of the tuner provide excellent selectivity, sensitivity, and rejection of spurious signals.

The high quality, 10.7 MHz IF filter, together with the integrated circuit MHz IF amplifier and quadrature detector, provides not only excellent selectivity but also a very linear passband. This results in true high fidelity audio and excellent stereo separation.

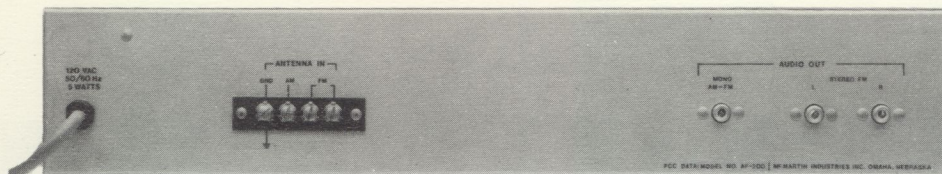
The FM and AM mono signal audio output from the tuner board is fed through an additional amplifier and emitter

follower stage to provide a high level 600 ohms output. The FM stereo audio outputs are fed through a 38 KHz LC filter before de-emphasis to eliminate any residual switching components from the stereo composite signal. If not filtered any residual 38 KHz components from the tuner could heterodyne with tape machine bias oscillators producing whistles.

The AF-200 is attractively packaged in an all-aluminum chassis with 3½" E.I.A. standard rack mount front panel. The front panel is finished in McMartin beige, textured enamel with vinyl leather grain trim.

The AF-200 may also be housed in the McMartin DTC-1 cabinet for desk top mounting.

Front panel controls consist of an illuminated "on-off" rocker switch, function selector, tuning control, and a calibrated slide rule dial with logging scale and AM/FM frequency.



Rear view of AF-200

SPECIFICATIONS

	FM	AM		
TUNING RANGE	88-108 MHz	540-1605 KHz	AF OUTPUT (Mono) .....	.1V rms @ 100% modulation 600 ohm load
ANTENNA INPUT	300 ohms balanced (screw terminals)	High Impedance, unbalanced (screw terminals)		.05V rms @ 90% modulation 600 ohm load
SENSITIVITY	3 μ V/30dB quieting	30 μ V/20dB S/N @ 30% modulation	MUTE DEPTH (Squelch)	-50dB
SELECTIVITY	-3dB @ 200 KHz -35dB min @ 400 KHz	-10dB @ \pm 10 KHz	AF OUTPUT (Stereo)	0.15V rms @ 100% modulation 5000 ohm load
IMAGE REJECTION ..	-55dB	-35dB	STEREO SEPARATION	30dB minimum @ 1 KHz
SPURIOUS RESPONSE	-60dB	-30dB	POWER REQUIRED ..	120V 50/60Hz, 5 watts
HARMONIC DISTORTION	1% or less @ 100% modulation	3% or less @ 90% modulation 400 Hz	DIMENSIONS	19 inches (48.3 cm) wide 3 1/2 inches (8.9 cm) high 8 1/2 inches (21.5 cm) deep
S/N RATIO	-55dB below 100% modulation with full limiting	-40dB below 30% modulation 5000 μ V input	REAR CHASSIS TERMINATIONS	Audio pin jacks Antennas screw terminals
AF RESPONSE	\pm 1dB 100-15,000 Hz	\pm 2dB 20-5000 Hz	FINISH	McMartin beige with vinyl leather grain trim
			SHIPPING WEIGHT ..	5 pounds (2.2 kilograms)

MUZAK®



SPECIALISTS IN THE PHYSIOLOGICAL AND PSYCHOLOGICAL APPLICATIONS OF MUSIC

MUZAK programming is based on a concept of "Progressive Stimulation" for psychological & physiological effect. This original oil painting is a pictorial representation of MUZAK programming, using color, form and values. It begins, lower left, with muted tones suggesting calm, peaceful moods. Then, sweeping up to the right, the brush strokes and colors become brighter and more vibrant to reflect the program's increasing stimulation value. A unique concept in sight and sound!

888 SEVENTH AVENUE, NEW YORK, N.Y. 10019 • (212) 247-3333 • CABLE/MUZAKORP

ALAN F. FLEISCH

VICE PRESIDENT

ASST. TO THE PRESIDENT

September 26, 1979

Mr. Fred Albert
Background Music Inc.
1308 Hot Springs Avenue
Cheyenne, WY 82001

Dear Fred:

Pursuant to our telephone conversation of last week, I have instructed our vendor to ship to you for testing the final prototype of the Muzak on-location machine.

As I mentioned to you during our conversation, upon receipt of the machine I would appreciate it if you could place it in service immediately so that the test period can be as useful as possible. If during the test period any problems arise with the machine, please note them and call me immediately.

I am attaching to this letter a copy of the preliminary operating instructions for this machine. I would appreciate it if you would review them and inform me of any comments (pro or con) which you may have.

Thank you for your continued cooperation.

Sincerely,

Alan F. Fleisch
Vice President

AFF:mbp
Enclosure

AGENDA

MUZAK FAC MEMBERS

Essex House Hotel
New York, N.Y.

Thursday, October 18, 1979

9:00 a.m. Colonial Room
2nd floor

Subjects: Introduction
Reports by FAC Members

System 40
MUZAK On-Location Service

12:30 p.m. Lunch
Colonial Room

2:00 p.m. Recording and Programming
Marketing
National Accounts
ASCAP, Quad Sound, Trademark Protection

Satellite Transmission

Concluding remarks by Mr. Muscio, updating FAC on material not covered above and will answer any general questions from FAC.

5:00 p.m. Conclusion (or adjourned until next day)

NOTE:

If meeting is continued on following morning, we will convene in the Promenade Room at 9:00 a.m.

Home Office personnel will meet in Mr. Muscio's office at 8:00 a.m. on October 18th.

SATELLITE TRANSMISSION

The distribution of the Muzak music program by means of Satellite Transmission will commence approximately six to eight months following approval of the system by the Federal Communications Commission. The transmission by satellite will replace the tape distribution system now used to provide you with your daily programming. Below is information relating to our satellite program.

- 1) Phase Out of Tape System. Effective with the implementation of satellite service, the tape distribution system shall be terminated. You will be instructed as to the number of tapes, in your possession on the date of termination, which should be retained for emergency use. Periodically, Muzak will replace these tapes with ones that contain the most recent Muzak recordings.
- 2) Phase In of Satellite System. Muzak shall commence, at the earliest date possible, supplying the Muzak Program Service via the Western Union "Westar" satellite.
- 3) Satellite Earth Stations.
Muzak will:
 - a) Provide one small aperture earth receive terminal capable of receiving the satellite signal emanating from the Westar satellite;

- b) Install or request you to install (at Muzak's expense) the earth receive station on a site in your franchise area which is acceptable to Muzak. An acceptable site is one which is capable of receiving the satellite signal.
- c) Connect the signal emanating from the earth station into your existing music distribution network.
- d) Provide replacement parts and components at its expense.

Franchisee will:

- a) Provide a site on which the earth station may be located. We suggest that the site which is selected be at the same location as your current tape studio. This will provide you with immediate switch-over capabilities to the tape system in the event of satellite failure.
- b) Obtain all local zoning ordinance clearances for the installation of the earth receive terminal.
- c) Conduct weekly tests of the earth station and report results to Muzak in accordance with test procedures to be outlined prior to installation of the terminal.

It is expected that these weekly tests will require less than 15 minutes to complete.

- d) Provide normal upkeep and maintenance of the earth receive terminal in accordance with instructions to be supplied at the time of installation. The system is composed of plug in modules. This design allows for easy repair in case of failure of any components. All replacement parts will be supplied by Muzak. (The earth receive terminal shall remain the sole property of Muzak.)
 - e) In the event that the earth station is damaged or destroyed through your negligence, misuse or abuse it shall be repaired or replaced at your cost and expense.
- 4) Charges. In consideration for these services you shall pay Muzak a monthly fee of \$160.00. This fee is in addition to all other fees which you are currently paying to Muzak.
- 5) Other. Muzak will make additional earth stations available at a monthly rate of \$200 per month per station. Additional earth stations may be used to replace existing telephone line connections, microwave links or subsidiary studios.